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TRADE MARK

FIRE ALARM SYSTEMS AND APPARATUS for

Small Towns and Municipalities

MANUFACTURED BY

STANLEY & PATTERSON

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AND SPECIAL SIGNAL APPARATUS OF EVERY DESCRIPTION

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BALTIMORE		CINCINNATI		HAVANA

"THE BEST THAT  MONEY CAN BUY"
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FARADAY FIRE ALARM SYSTEMS

This catalog has been compiled with the idea first in mind to simplify in a practical way the selection, specification, sale, purchase and installation of fire alarm apparatus for municipalities and large manufacturing plants.

CATALOG LISTING SIMPLIFIED

An entirely new method of catalog listing is employed—each system is designated by a Code-Letter and each Model No. of Box, Gong, Control-Cabinet, and all other apparatus used on a system carries the corresponding Code-Letter of that system. For example, all apparatus carrying the Code-Letter "M" is designed to operate on System "M", all apparatus carrying the Code-Letter "T" is designed to operate on System "T", etc.

SELECTION OF APPARATUS MADE EASY

Fire-Commissioners, Town-Boards, Trustees, Engineers, etc., have from previous cataloging found the purchase, specification and selection of Fire Alarm Apparatus rather difficult, but this new method of cataloging—the tying of Fire Alarm Systems and Apparatus together by Code-Letters so simplifies selection that, with very little effort, anyone can find what is required.

MUNICIPAL FIRE ALARM SYSTEMS

Faraday Municipal Fire Alarm Systems are designed for every purpose where life and property are to be protected from fire hazard, with full consideration of the necessity that a fire alarm system must be absolutely dependable in operation and, at the same time, simple and economical both as to initial cost and maintenance.

In this catalog, covering exclusively **MUNICIPAL FIRE ALARM SYSTEMS**, three (3) distinct systems are listed:

- (a) System "M" for cities, towns and large industrial plants, desiring the very highest class of equipment.
- (b) System "T" for cities, small towns and smaller industrial plants where the keeping down of initial cost is of first consideration.
- (c) System "V" for small towns and villages, desiring to start with the least expensive equipment.

We issue a separate catalog covering industrial fire alarm systems which will be sent promptly upon request.

FARADAY FIRE ALARM APPARATUS EXCELS IN QUALITY

Faraday Fire Alarm Apparatus has been on the market for over fifteen years; it has steadily been improved in quality and design from year to year and, manufactured by us in an absolutely modern plant equipped with up-to-date precision machinery, is guaranteed to be electrically and mechanically perfect. Particular attention, however, is called to the necessity of **proper installation and maintenance** if every-day-in-the-year satisfactory service is to be obtained. Installation suggestions are furnished with each system.

ENGINEERING ADVICE

Our Engineering Department will promptly advise and cordially co-operate with anyone contemplating the installation or use of fire alarm apparatus.

Send for Special Catalog on Faraday Fire Alarm Systems and Apparatus for Industrial Plants, Schools, Hospitals, Institutions, Hotels, etc.

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FARADAY MUNICIPAL FIRE ALARM SYSTEMS

WHY MUNICIPAL FIRE ALARM SYSTEMS ARE A NECESSITY



Fire losses in the United States and Canada reaching as they do, the colossal sum of billions of dollars—for the year 1926 alone, fire losses in the United States amounted to **\$561,980,751.00 or nearly 562 million dollars**, are causing municipalities to more and more consider **the necessity of adequate fire protection.**

Fire Underwriters are scanning carefully fire-hazards of towns and villages, not as yet provided with up-to-date Fire Alarm Equipment, and a fire-loss occurring in such localities frequently results in an increase in insurance-rates, exceeding by far the cost of adequate protection.

Motor-driven fire apparatus is being purchased, volunteer firemen are being trained, but **the money expended on Motor-driven apparatus, and the time taken in training the men is wasted unless instant and dependable means of advising the firemen of the existence of a fire are provided.**

Experience has shown that a small fire may be extinguished with very little effort if prompt attention is given it, but if, because of delay in announcing its existence, it is permitted to spread, it may develop into a conflagration and destroy an entire community.

WHY FIRE ALARM EQUIPMENT MUST BE OF THE HIGHEST STANDARD OF QUALITY

It must be borne in mind that **fire alarm equipments are for the protection of life and property and, in order to secure such protection, all apparatus and devices must be of the highest quality and absolutely dependable.**

It must always be remembered that investment in even the most expensive, up-to-the-minute fire-extinguishing-apparatus is practically useless, unless there is dependable fire-alarm-equipment with which to call the fire-extinguishing-equipment into service.

With these facts constantly in mind Faraday Fire Alarm Apparatus has, for many years, been manufactured with the utmost regard to all details which make for the greatest dependability, and that high standard of quality, for which all Faraday products are noted, has been maintained throughout.

This catalog, in its first part, combines a number of Municipal-Type Fire Alarm Devices under the title of "**Systems**", which, however, are intended merely as a basis for arriving at a decision and are **not to be considered inflexible.** They may be changed as circumstances and specific local conditions demand.

WHAT COMPRISES A FIRE ALARM SYSTEM

A Municipal Type Fire Alarm System consists principally of a definite number of alarm-transmitting stations or fire alarm boxes or their equivalent, located conveniently so that they be readily accessible to the inhabitants of the political sub-divisions involved, and of devices for summoning the fire department-call-men or volunteers, such devices consisting of either steam or compressed-air-whistles, compressed-air-horn-sets, tower-bell-strikers, or electric motor-driven sirens.

(Continued on next page)

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WHY MUNICIPAL FIRE ALARM SYSTEMS ARE A NECESSITY

(Continued from preceding page)

CLASSIFICATION OF MUNICIPALITIES

In order that there be uniformity in the installation, etc., etc., of such important equipment, The National Fire Protection Association collected field experience and worked this data into a set of regulations, now adopted by the National Board of Fire Underwriters, as:

"REGULATIONS FOR THE INSTALLATION, MAINTENANCE AND USE OF MUNICIPAL FIRE ALARM SIGNAL SYSTEMS"

These regulations divide Municipalities into three (3) classes, viz:

Class "A" where the number of alarms of fire per year approximates or exceeds 600.

Class "B" where the number of alarms of fire per year approximates or exceeds 300 and not over 600.

Class "C" where the number of alarms of fire per year does not exceed 300.



This present catalog covers only Class "C" systems and apparatus; Class "A" and Class "B" Fire Alarm Systems and Apparatus will be listed in a separate catalog to be issued at a later date.

Class "C" political sub-divisions include the average village, borough, and town, etc., and to those residing in or having charge of the government of such communities the information compiled in this catalog must be of great value.

Class "C" fire alarm systems do not require the constant attendance of a trained operator at Headquarters, since the alarms are automatically transmitted from the street fire alarm boxes to all fire-stations and to central alarm broadcasting-devices, such as compressed-air-horn-sets, whistles, tower-bells, etc., etc.

FIRE ALARM SYSTEMS FOR CLASS "C" MUNICIPALITIES

Three general systems are listed in this catalog, and the various parts have been cross-referenced as well as indexed so as to enable anybody to select and closely approximate the cost of an adequate equipment to fit the needs of his particular locality.

USEFUL INFORMATION

Detailed information as to the cost of pole-line work, the isolation of trouble, the installation of inside work in central-offices and other semi-technical data, seldom, if ever, found between the covers of a catalog, has been collected, edited and then submitted to "men in the field" for their criticism. It is our sincere belief that these pages will be a valuable aid in the solution of the fire alarm signal problem in many communities.

WHEN CONTEMPLATING INSTALLATION OF A FIRE ALARM SYSTEM

We maintain a corps of engineers to cooperate with interested parties in the solution of their problems.

It is suggested that, whenever the installation of a Fire Alarm System is contemplated, a layout of the community be made "on the job" that the equipments desired be marked thereon and that this information be forwarded to our engineers for suggestions, criticism, etc. We shall then be in a better position to outline proposals for an equipment, together with an approximate cost of the same.

This method has been found to work out to great advantage to all concerned. It places the interested parties under no obligation of any kind. It is simply the cooperation we cordially offer to all parties interested in Municipal Fire Alarm problems.

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FARADAY MUNICIPAL FIRE ALARM SYSTEMS

EQUIPMENT REQUIRED

Faraday Municipal Fire Alarm Systems are designed for every purpose where life and property is to be protected from fire hazard, with full consideration of the necessity that a fire alarm system must be absolutely dependable in operation and, at the same time, simple and economical both as to initial cost and maintenance.

In this catalog, covering exclusively MUNICIPAL FIRE ALARM SYSTEMS, three (3) distinct systems are listed:

- (a) **System "M"** for cities, towns and large industrial plants, desiring the very highest class of equipment.
- (b) **System "T"** for cities and towns and smaller industrial plants where the keeping down of initial cost is of first consideration.
- (c) **System "V"** for small towns and villages, desiring to start with the least expensive equipment.

Wherever possible it is advisable that the complete equipment consisting of:

- (a) **SENDING EQUIPMENT**—Fire Alarm Boxes or Transmitters or both.
- (b) **SOUNDING EQUIPMENT**—Air-Horns, Sirens, Steam Whistles, Air-Whistles, Tower-Bell, Gongs, Tappers.
- (c) **RECORDING EQUIPMENT**—Punch-Registers with Time-Stamped and Take-up-Reels.
- (d) **CENTRAL OFFICE EQUIPMENT**—Control-Panel, Lightning Arresters.
- (e) **POWER PLANT EQUIPMENT**—Storage Batteries in duplicate, together with suitable charging equipment.

be installed right from the beginning. However, where, from lack of available funds, it is necessary to restrict the expenditures the Sending-Equipment may be limited to a few Fire Alarm boxes, placed at important points of a municipality and a Transmitter installed at Police-Headquarters, or in a Telephone Exchange—where permitted. In certain cases Transmitters may even be used alone. Later, should it be desired to add Fire Alarm Boxes this may be done without junking any of the apparatus already installed.

SENDING EQUIPMENT

may, according to what system is used, consist of

- (a) **Succession Non-Interfering Fire Alarm Boxes**
- (b) **Positive Non-Interfering Fire Alarm Boxes**
- (c) **Plain Type Fire Alarm Boxes**
- (d) **Slow Movement Two-Round Plain Type Fire Alarm Boxes (for Siren Systems only)**
- (e) **Manual Transmitter—Positive Non-Interfering or Plain**
- (f) **Push-Button Boxes (for Siren-Systems only).**

Succession Positive Non-Interfering Type Fire Alarm Boxes are similar to Positive Non-Interfering; however, as the name implies, they are so constructed that every box which has been pulled—after the first box has transmitted its four rounds, will **IN SUCCESSION**, send its code without interference, even though several boxes may have been pulled at or about the same time.

Positive Non-Interfering Boxes are employed in the better types of electrically-supervised closed-circuit systems and, where installed, no "jumbling" of signals can occur if two or more boxes are pulled at about the same time, as one box will secure the line, transmit its signal and automatically cut out all interference. After having transmitted the signal four rounds, boxes automatically reset themselves. Attention is called to the fact that System "T" may use Positive Non-Interfering Faraday Fire Alarm Boxes; however, where these boxes are used the Plain Type Boxes cannot be used on the same installation.

(Continued on next page)

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EQUIPMENT REQUIRED

(Continued from preceding page)

Plain Type Code-Sending Boxes may also be employed in closed-circuit systems and where the lever of any box has been pulled down as far as it will go, the box will transmit its code four times; no manipulation of the lever can cause confusion of signal. However, should more than one box be pulled at about the same time, there is likely to be confusion or "jumbling" of signals.

Two-Round Plain Type Faraday Fire Alarm Boxes are closed-circuit, code-sending and are designed specially for the operation of control-circuits for Motor-Driven Electric Sirens.

Manual Transmitters are designed to afford centralized control of Fire Alarm Signal-Systems and are made in either

Plain Type

Plain Type Accelerated

Positive Non-Interfering Type Accelerated or

Slow-Movement, Two-Round Plain, Type Accelerated (For Siren System "V")

Push-Button-Boxes are designed to control the operation of Electric Sirens from remote points. They do not permit the sounding of codes, nor do they indicate the point from which the alarm originates.

SOUNDING EQUIPMENT

may, according to what system is used, consist of

- (a) **Compressed-Air-Horn-Sets**
- (b) **Electric Sirens, coded and non-coded**
- (c) **Compressed-Air-Whistles**
- (d) **Steam-Whistles**
- (e) **Electro-Mechanical Gongs and Tappers**
- (f) **Tower-Bell-Strikers.**

Compressed-Air-Horn-Sets consist of 4 or 6 horns on a sturdy bracket for mounting on roofs or in towers, etc., and the air for their operation is contained in reservoirs which are maintained at a constant pressure by means of automatic electric compressors. They are made for either Automatic or Manual operation.

Electric Sirens are of two principal types, i. e., the larger being used for general alarm and may be coded or non-coded—and the smaller as auxiliary devices where a special-tone signal is desired.

Compressed-Air and Steam-Whistles may be used, under certain conditions, in connection with Fire Alarm Systems. Our Engineering Department will, upon request, gladly furnish detailed information.

Electro-Mechanical Gongs and Tappers are employed in Fire houses, residences of chief-engineers, their assistants and members of the Fire Department.

Tower-Bell-Strikers are used where it is desired to sound the alarm as transmitted from standard Fire Alarm boxes on large Tower-Bells.

Our Engineering Department will, upon request, gladly furnish detailed information.

RECORDING EQUIPMENT

Automatic Punch-Registers are a necessity for the recording of alarms and all signals, sent over the line. Each impulse causes a hole to be punched in a paper-tape, thus making a permanent record of the signal transmitted.

Time-stamps, while not absolutely necessary, are a most desirable addition to a fire-alarm-system. The first impulse sent over the line actuates a time-stamp and marks the day, month, year, hour and minute, on the paper-tape just in advance of the first punch-mark. This record establishes the exact time of alarm and later on will record the "back-tap" or "return-to-quarters" signals, sent by the firemen from either the fire-alarm-boxes or from their quarters.

(Continued on next page)

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EQUIPMENT REQUIRED

(Continued from preceding page)

CENTRAL OFFICE EQUIPMENT

Control-Panels are an absolute necessity in a Central-Office-Equipment for the control and testing of the exterior fire alarm circuits and the alarm sounding equipment.

In determining the number of circuits for the Control-Panel it must always be remembered that a fire alarm circuit is restricted to a maximum of twenty (20) fire alarm boxes. In the lay-out of the system it is better practice to have the circuits so arranged that, should for any reason one circuit fail, the immediate neighborhood will not be without protection during the time the injured circuit is being repaired.

The Lightning-Arrester Panel is designed for the protection of the fire alarm-circuits and should be located at the entrance of the circuits to the Central-office-building.

POWER-PLANT EQUIPMENT

Storage-Batteries in duplicate are required in all Municipal Fire Alarm Systems except Siren-Systems which require for their operation dependable AC 220-440 Volt Light and Power Circuits.

Storage-Battery-Requirement is arrived at in the following manner:

First: Determine the resistance to be encountered in the installation, computing each bell-magnet, whistle-limit-relay, punch-register, etc., at approximately 20 ohms and, where wire is involved, add 1 ohm per 1000 feet, for No. 10 B & S wire and 3 ohms per 2000 feet for No. 14 B & S wire.

Second: Inasmuch as the standard discharge-rate on fire alarm circuits is 100 milli-amperes or 0.1 ampere, Ohms-Law will give the required voltage as follows:

$$\text{Current equals Voltage divided by Resistance } (I = \frac{E}{R})$$

or

$$\text{Voltage equals Current multiplied by Resistance } (E = I \times R)$$

To the result obtained must be added approximately 50 percent (50%) for the reason that the Underwriters require that the current-supply shall be approximately 50 percent (50%) in excess of the normal requirements of the system.

BATTERY-CHARGING EQUIPMENT

Battery-Charging-Equipment is based on the size of the battery. It may be closely approximated by adding about 10 percent (10%) to the required battery-voltage, and this value, multiplied by the maximum-ampere-charging-rate (4 amperes at the highest), will give the required wattage-output for the charging-set. Selecting from the table, shown on another page, the Battery-Charging-Outfit, nearest in capacity to that arrived at through the above computation, will give the proper commercial charging-set.

OUTSIDE WIRE PLANT

The requirements of the outside wire plant are treated at length on another page.

INSTALLING A FIRE ALARM SYSTEM OFFERS NO DIFFICULTY

Any qualified electrician can do it. The exterior circuits are of the closed, metallic type. The battery-circuit and the power circuits for the charging-set, and the compressor-set are strictly in accordance with the National Electric Code for such installations.

Broadly speaking, if an electrician will treat a fire alarm system as a light-and power-job, notwithstanding the fact that it is a low-voltage-signal-system, he cannot go wrong.

Of course, the pole-line-work requires skilled men who know the practice and usages of aerial-work.

WE FURNISH WIRING DIAGRAMS

We furnish wiring-diagrams and all the necessary data qualified electricians may need to make satisfactory installations.

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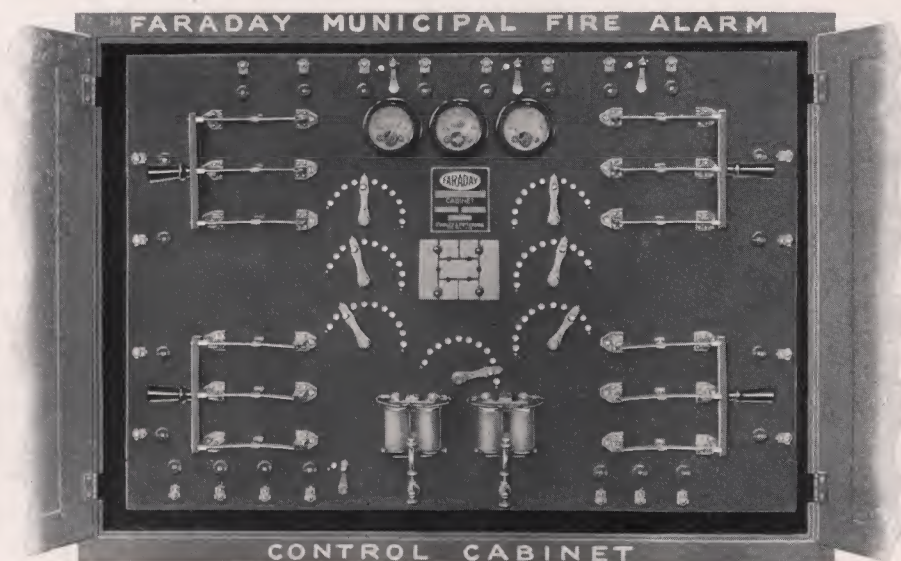
TRADE MARK

FARADAY MUNICIPAL FIRE ALARM SYSTEMS

SYSTEM "M"

FOR STORAGE BATTERY OPERATION

Electrically-Supervised, Code-Sending, Closed-Circuit



Model No. 111-M
FARADAY FIRE ALARM CONTROL CABINET
Showing Relays, Meters, Test-Switches, etc.
Furnished regularly in pressed-steel cabinet
with door and Yale-lock, or mounted on legs,
as illustrated on page 10, at no extra charge,
if so specified at time of ordering.

Recommended for Cities, Towns, Large Industrial Plants, etc.

System "M" provides the highest type of fire alarm protection. For convenience in wiring, the circuits may be divided into as many as 4, if necessary. It employs Positive Non-Interfering or Succession Faraday Fire Alarm Boxes in weatherproof cases, Electro-Mechanical Gongs and Single-Stroke Tappers, Punch-Registers and for the automatic sounding or broadcasting of alarms, Faraday Compressed-Air-Horns or Steam-Whistles are used. Manual Transmitters may also be used with this system—these devices being designed for installation in Police Headquarters, Telephone-Exchanges, where permitted, etc., for the purpose of sounding coded-signals on fire-alarm-circuits without the necessity of transmitting them from the fire alarm boxes, i. e., they permit the sounding of a fire-alarm which may have been telephoned to Police-Headquarters or a Telephone-Exchange. All circuits, instruments and apparatus are constantly under electrical test.

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"THE BEST THAT



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SYSTEM "M"

(Continued from preceding page)

APPARATUS

NOTE—The items marked (†) are necessary for a complete system, also either one of the items marked (*). Other devices, while not essential, are recommended.

†**BOXES**—Use Positive Non-Interfering or Succession Fire Alarm Boxes listed under "Boxes" bearing Code-Letter "M". Listed on pages 18 and 19.

†**GONGS**—Use Gongs and Tappers listed under "Gongs" bearing Code-Letter "M". Listed on page 27.

†**CONTROL-CABINET or PANEL**—Use proper size Control-Cabinet or Panel listed under "Control-Cabinets" bearing Code-Letter "M". Listed on page 36.

†**CHARGING-CONTROL-CABINET or PANEL**—Use Charging-Control-Cabinet or Panel listed under "Charging-Control-Cabinets" bearing Code-Letter "M". Always specify whether batteries are to be charged direct from DC line-voltage or from Motor-Generator or Rectifier. Listed on page 37.

†**LIGHTNING-ARRESTER-CABINET**—Use proper size Lightning-Arrester-Cabinet listed under "Lightning-Arrester-Cabinets" bearing Code-Letter "M". Listed on page 42.

†**TROUBLE-BELL**—Use Trouble-Bell (one only required) listed under "Trouble-Bells" bearing Code-Letter "M". Listed on page 39.

†**STORAGE BATTERY**—Use Storage Battery listed under "Storage Batteries" bearing Code-Letter "M", having a minimum capacity of 12 ampere-hours, installed in duplicate. At least 15 cells should be installed in each set (30 in all), thus giving a voltage of approximately 30 volts for the operation of the system. See on another page under heading "**Equipment Required**" how to compute the number of cells necessary. Listed on page 39.

†**MOTOR-GENERATOR**—Use Motor-Generator listed under "Motor-Generators" bearing Code-Letter "M". Listed on page 40.

†**RECTIFIER**—If Rectifier is preferred to Motor-Generator, use that listed under "Rectifiers" bearing Code-Letter "M". Listed on page 40.

CHARGING-CONTROL-OUTFIT with Motor-Generator with Rectifier in reserve—Use Charging-Control-Outfit bearing Code-Letter "M," listed under "Charging-Control-Outfits." Listed on page 38.

PUNCH-REGISTER—Use Punch-Register and Take-up-Reel listed under "Punch-Registers." Listed on page 43.

TIME-STAMP-OUTFITS—Use Time-Stamp-Outfits, listed under "Time-Stamp-Outfits." They can be used only where Punch Registers are used. Listed on page 43.

MANUAL TRANSMITTER—Use Manual Transmitters listed under "Manual Transmitters" bearing Code-Letter "M". Listed on pages 22, 23 and 24.

***HORN-OUTFITS FOR AUTOMATIC OPERATION**—Use proper size Compressed-Air Horn-Outfits, listed under "Compressed-Air Horns for Automatic Operation" bearing Code-Letter "M". These horn-outfits are furnished with 4 or 6 horns on one bracket for direct automatic connection to fire alarm circuits. Listed on pages 28 and 29.

***HORN-OUTFITS FOR MANUAL OPERATION**—Use proper size Compressed-Air Horn-Outfits listed under "Compressed-Air Horn-Outfits for Manual Operation" bearing Code-Letter "M". These horn-outfits are similar to above, but the signals are sounded manually and not automatically. Listed on pages 28 and 29.

AUTOMATIC STEAM WHISTLES—These devices may be used under certain conditions. We do not furnish apparatus for the source of power for the operation of Steam-Whistles, supplying merely the whistles and valves and auxiliary equipment for their operation. Details regarding these devices will be furnished promptly by our Engineering Department on request. Listed on page 35.

(Continued on next page)

"THE BEST THAT MONEY CAN BUY"



SYSTEM "M"

(Continued from preceding page)

WIRING

(Diagram of Wiring included with each shipment or sent in advance when requested)

All apparatus, i. e., boxes, gongs and other sounding devices should be wired in straight-series on each individual circuit, using nothing smaller than No. 10 B & S, triple-braid weatherproof wire for all outside circuits and No. 14 B & S N.E.C. rubber-covered wire for all interior circuits.

The construction should be strictly in accordance with N.E.C. Standard light and power-practice, using double-petticoat glass-insulators, etc. Where boxes are placed on poles, $\frac{1}{2}$ inch conduit should be used from the overhead-line into the box for the protection of the wires. No. 14 B & S N.E.C. solid rubber-covered wire should be used in this circuit.

From **CONTROL-CABINET** to **CHARGING-CONTROL-CABINET** run two No. 10 B & S N.E.C. rubber-covered wires.

If **MOTOR-GENERATOR** or **RECTIFIER** is used run four No. 10 B & S N.E.C. rubber-covered wires from Motor-Generator or Rectifier to Charging Control Panel.

From **CHARGING-CONTROL-CABINET** to **STORAGE BATTERY** run four No. 10 B & S N.E.C. rubber-covered wires.

From **CONTROL-CABINET** to **TROUBLE-BELL**, run two No. 14 B & S N.E.C. rubber-covered wires.

All interior wires should be N.E.C. Standard and installed in conduit, the size of conduit being determined by the number of wires used.

GENERAL RULES AS TO NUMBER OF BOXES, GONGS, LOCATION, ETC.

BOXES—Boxes should be located at the intersection of streets, and a sufficient number should be installed so that as little time as possible is lost in sending in an alarm. A box placed at every alternate street-corner will afford the best protection.

GONGS—Gongs should be located in each fire house, also in the residence of the Chief Engineer and his Assistants. The sizes suggested are:—for Fire-House, 12 to 18 inch Electro-Mechanical Gongs; for the Chief Engineer and Assistants, 8-inch Electro-Mechanical Gongs or 6-inch Tappers.

HORNS, WHISTLES, ETC.—Horns, Whistles and other general sounding devices should be located as near as possible to the center of the town, at an elevation of 30 to 50 feet above the ground. Care should be exercised in locating them so as to prevent the "blanketing" of the device by surrounding high buildings, towers, trees, etc. If the area to be covered is large and the terrain rolling, it may be advisable to install more than one unit, each located at a point calculated to give the best results.

CONTROL-CABINET—Control-Cabinet should be located as near as possible to the Storage Batteries and other central office equipment.

CHARGING-CONTROL-CABINETS—Charging-Control-Cabinets should be located as near as possible to the Storage Batteries and other central-office-equipment.

LIGHTNING-ARRESTER-CABINETS—Lightning-Arrester-Cabinets should be located as near as possible to the point of entrance of the exterior circuit.

TROUBLE-BELL—Trouble-Bell should be located where its operation will attract attention, and within the limits of 50 feet from the Control Panel.

STORAGE BATTERIES—Storage Batteries should be located in a separate, well-ventilated room, and be easily accessible.

For more detailed information see "How to estimate the approximate cost of the outside wire-plant for a Municipal Fire Alarm System" on pages 47, 48 and 49.

Send for Special Catalog on Faraday Fire Alarm Systems and Apparatus for Industrial Plants, Schools, Hospitals, Institutions, Hotels, etc.

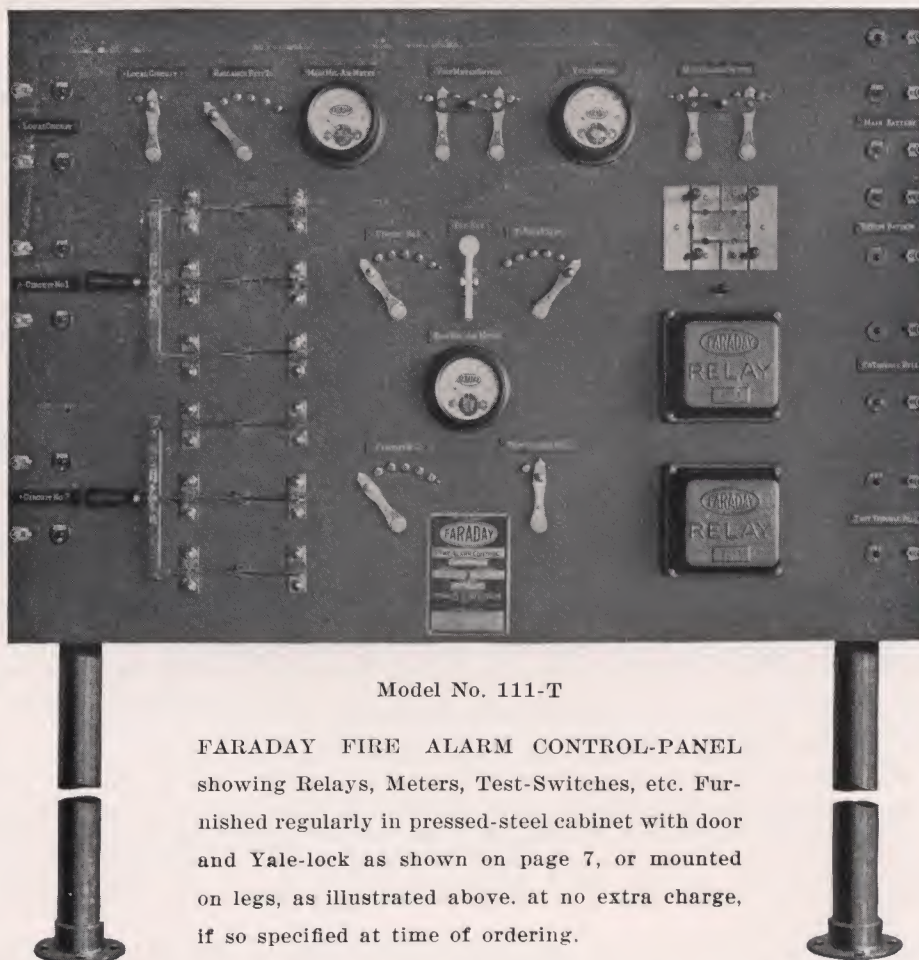
“THE BEST THAT  MONEY CAN BUY”
TRADE MARK

FARADAY MUNICIPAL FIRE ALARM SYSTEMS

SYSTEM “T”

FOR STORAGE BATTERY OPERATION

Electrically-Supervised, Code-Sending, Closed-Circuit.



Model No. 111-T

FARADAY FIRE ALARM CONTROL-PANEL showing Relays, Meters, Test-Switches, etc. Furnished regularly in pressed-steel cabinet with door and Yale-lock as shown on page 7, or mounted on legs, as illustrated above, at no extra charge, if so specified at time of ordering.

Recommended for Cities, Small Towns, Industrial Plants, etc., where not more than 20 boxes would be used.

System “T” is designed for use in places where the protection afforded by a closed-circuit code-sending fire alarm system is desired, but where, because of limited funds available, a medium-cost system must be installed.

System “T” employs Plain-Type Code-Sending Fire Alarm Boxes in weatherproof cases, Electro-Mechanical Gongs and Single-Stroke Tappers for sounding the signals transmitted from the boxes, and Faraday Compressed-Air Horns, Steam-Whistles, etc., for the sounding of the general alarm. Faraday Compressed-Air-Horns and Steam-Whistles may be easily coded and thus the same signal, transmitted by boxes or Manual Transmitters, may be sounded rapidly and clearly.

All circuits, instruments and apparatus are constantly under electrical test.

(Continued on next page)

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"THE BEST THAT



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TRADE MARK

SYSTEM "T"

(Continued from preceding page)

APPARATUS

NOTE:—The items marked (†) are necessary for a complete system, also either one of the items marked (*). Other devices, while not essential, are recommended.

†**BOXES**—Use Boxes listed under "Boxes" bearing Code-Letter "T." Listed on page 20.

†**GONGS**—Use Gongs and Tappers listed under "Gongs" bearing Code-Letter "T." Listed on page 27.

†**CONTROL-CABINET or PANEL**—Use proper size Control-Cabinet or Panel listed under "Control-Cabinets" bearing Code-Letter "T." Listed on page 36.

†**CHARGING-CONTROL-CABINETS or PANELS**—Use Charging-Control-Cabinet or Panel listed under "Charging-Control-Cabinets" bearing Code-Letter "T." Always specify whether batteries are to be charged direct from DC line-voltage or from Motor-Generator or Rectifier. Listed on page 37.

CHARGING-CONTROL-OUTFIT with Motor-Generator with Rectifier in reserve—Use Charging-Control-Outfit bearing Code-Letter "T," listed under "Charging-Control-Outfits." Listed on page 38.

†**LIGHTNING-ARRESTER CABINET**—Use proper size Lightning-Arrester-Cabinet listed under "Lightning-Arrester Cabinets" bearing Code-Letter "T." Listed on page 42.

†**TROUBLE-BELL**—Use Trouble-Bell (one only required) listed under "Trouble-Bells" bearing Code-Letter "T." Listed on page 39.

†**STORAGE BATTERY**—Use Storage Battery listed under "Storage Batteries" bearing Code-Letter "T," having a minimum capacity of 12 ampere-hours, installed in duplicate. At least 10 cells should be installed in each set (20 in all) thus giving a voltage of approximately 20 volts for the operation of the system. See on another page under the heading "Equipment Required" how to compute the number of cells necessary. Listed on page 39.

†**MOTOR-GENERATOR**—Use Motor-Generator listed under "Motor-Generators" bearing Code-Letter "T." Listed on page 40.

†**RECTIFIER**—If Rectifier is preferred to Motor-Generator use that listed under "Rectifiers" bearing Code-Letter "T." Listed on page 40.

PUNCH-REGISTER—Use Punch-Register and Take-up-Reel, listed under "Punch Registers." Listed on page 43.

TIME-STAMP-OUTFITS—Use Time-Stamp-Outfits, listed under "Time-Stamp-Outfits." They can only be used where Punch-Registers are used. Listed on page 43.

MANUAL TRANSMITTER—Use Manual Transmitters listed under "Manual Transmitters" bearing Code-Letter "T." Listed on pages 22, 23 and 24.

***HORN-OUTFITS FOR AUTOMATIC OPERATION**—Use proper size Compressed-Air Horn-Outfits, listed under "Compressed-Air Horns for Automatic Operation" bearing Code-Letter "T." These horn outfits are furnished with 4 or 6 horns on one bracket for direct automatic connection to fire alarm circuits. Listed on pages 28 and 29.

***HORN-OUTFITS FOR MANUAL OPERATION**—Use proper size Compressed-Air Horn-Outfits listed under "Compressed-Air Horn-Outfits for Manual Operation" bearing Code-Letter "T." These horn-outfits are similar to above, but the signals are sounded manually and not automatically. Listed on pages 28 and 29.

AUTOMATIC STEAM-WHISTLES—These devices may be used under certain conditions. We do not furnish apparatus for the source of power for the operation of Steam-Whistles, supplying merely the whistles and valves and auxiliary equipment for their operation. Details regarding these devices will be furnished promptly by our Engineering Department on request. Listed on page 35.

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"THE BEST THAT



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SYSTEM "T"

(Continued from preceding page)

WIRING

(Diagram of Wiring included with each shipment or sent in advance when requested)

All apparatus, i. e., boxes, gongs and other sounding devices should be wired in straight-series on each individual circuit, using nothing smaller than No. 10 B & S triple-braid weatherproof wire for all outside circuits and No. 14 B & S N.E.C. rubber-covered wire for all interior circuits.

The construction should be strictly in accordance with N.E.C. Standard light and power-practice, using double-petticoat glass-insulators, etc. Where boxes are placed on poles, $\frac{1}{2}$ inch conduit should be used from the overhead-line into the box for the protection of the wires. No. 14 B & S N.E.C. solid rubber-covered wire should be used in this circuit.

From **CONTROL-CABINET** to **CHARGING-CONTROL-CABINET** run two No. 10 B & S N.E.C. rubber-covered wires.

If **MOTOR-GENERATOR** or **RECTIFIER** is used run four No. 10 B & S N.E.C. rubber-covered wires from Motor-Generator or Rectifier to Charging-Control-Panel.

From **CHARGING-CONTROL-CABINET** to **STORAGE-BATTERY** run four No. 10 B & S N.E.C. rubber-covered wires.

From **CONTROL-CABINET** to **TROUBLE-BELL** run two No. 14 B & S N.E.C. rubber-covered wires.

All interior wires should be N.E.C. Standard and installed in conduit, the size of conduit being determined by the number of wires used.

GENERAL RULES AS TO NUMBER OF BOXES, GONGS, LOCATION, ETC.

BOXES—Boxes should be located at the intersection of streets, and a sufficient number should be installed so that as little time as possible is lost in sending in an alarm. A box placed at every alternate street-corner will afford the best protection.

GONGS—Gongs should be located in each fire-house, also in the residences of the Chief Engineer and his Assistants. The sizes suggested are: for Fire House, 12 to 18 inch Electro-Mechanical Gongs; for the Chief Engineer and Assistants, 8-inch Electro-Mechanical Gongs or 6-inch Tappers.

HORNS, WHISTLES, ETC.—Horns, Whistles and other general sounding devices should be located as near as possible to the center of the town, at an elevation of thirty to fifty feet above the ground. Care should be exercised in locating them so as to prevent the "blanketing" of the device by surrounding high buildings, towers, trees, etc. If the area to be covered is large and the terrain rolling it may be advisable to install more than one unit, each located at a point calculated to give the best results.

CONTROL-CABINET—Control-Cabinet should be located as near as possible to the Storage Batteries and other central-office equipment.

CHARGING-CONTROL-CABINET—Charging-Control-Cabinet should be located as near as possible to the Storage Batteries and other central-office-equipment.

LIGHTNING-ARRESTER CABINET—Lightning-Arrester-Cabinet should be located as near as possible to the point of entrance of the external circuit.

TROUBLE-BELL—Trouble-Bell should be located where its operation will attract attention, and within the limits of 50 feet from the Control Panel.

STORAGE BATTERIES—Storage Batteries should be located in a separate, well-ventilated room and be easily accessible.

For more detailed information see "How to estimate the approximate cost of the outside wire-plant for a Municipal Fire Alarm System on pages 47, 48 and 49.

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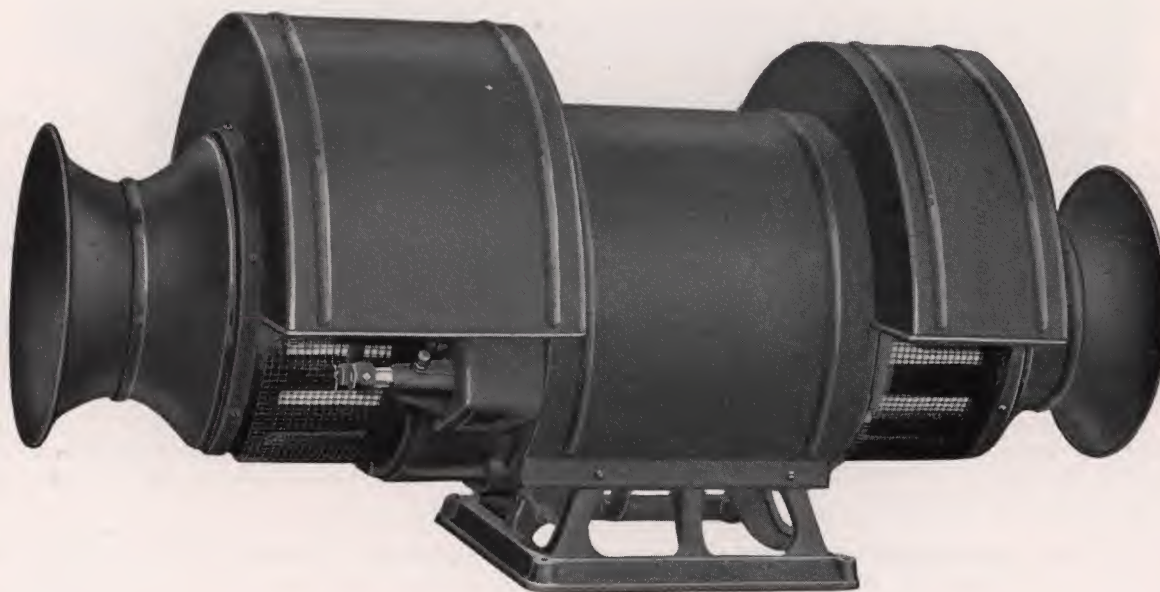
MONEY CAN BUY"

FARADAY MUNICIPAL FIRE ALARM SYSTEMS

SYSTEM "V"

USING ELECTRIC MOTOR-DRIVEN SIRENS

For operation on dependable AC 220-440 Volt Single or Polyphase 50-60 cycle circuits
(25, 30 and 40 cycle to order)



ELECTRIC MOTOR-DRIVEN DOUBLE-HEAD SIREN

Recommended for communities desiring a fire alarm system, but which, for certain reasons, do not wish to install the standard "local-energy" type of system such as "M" and "T," described on other pages.

System "V" requires for operation an AC Power-Circuit. The Sirens are furnished for either single or polyphase operation—220-440 volts and at standard frequencies.

There are six (6) types of Electric Motor-Driven Siren-Systems. A start may be made with any of the types enumerated on the next page, even the coding-siren may be the beginning. As the Community expands, it may eventually step up to Systems "T" or even "M," shown on other pages—making use of the siren merely as an alarm device auxiliary to these systems.

(Continued on next page)

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"THE BEST THAT



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TRADE MARK

SYSTEM "V"

USING ELECTRIC MOTOR-DRIVEN SIRENS

(Continued from preceding page)

According to the degree of protection desired and the amount of funds available, Siren System "V" is arranged as follows:

Type 1—Electric Motor-Driven Siren with **Safety Hand Control Switch**.

Type 2—Electric Motor-Driven Siren with **Safety-Push-Buttons** or **Safety-Push-Button-Boxes**, located throughout the Community.

Type 3—Electric Motor-Driven Siren with **Safety-Push-Buttons** or **Safety-Push-Button-Boxes**, located throughout the Community, with the addition of an **Automatic Controller at the Siren**.

Type 4—Electric Motor-Driven Siren with **Safety-Push-Buttons** or **Safety-Push-Button-Boxes**, located throughout the Community, **Automatic-Controller at the Siren** with the addition of an **Automatic Pre-Determined Time-Stop**.

Type 5—**Coding-Type**. Electric Motor-Driven Siren with special **Manual Transmitter** at some central point, such as Police-Headquarters, etc. (Telephone-exchange where permitted.)

Type 6—**Coding-Type** Electric-Motor-Driven Siren with **Special Two-Round-Code-Signaling Boxes** located throughout the community, and a special **Manual Transmitter**, if desired.

In **Type 1** the Siren is generally so located that the base of the Siren is slightly higher than the surrounding buildings. The **Safety Hand-Control-Switch** is mounted on the front of the building or structure on which the Siren is located, the center of the switch being not less than six feet from the finished ground level. **This arrangement can produce only a "fixed" tone or note of the Siren.**

In **Type 2** the Siren is mounted the same as in Type 1. The **Safety-Push-Buttons** or **Safety-Push-Button-Boxes** are located throughout the Community. They are electrically connected to a **Contactor-Relay** which closes the power-circuit to the Siren.

This arrangement will result in a "fixed-tone" or note being given off by the siren. **To change the tone or note from "fixed" to "up-and-down," it will be necessary to operate the Safety-Push-Buttons—first START, then STOP, etc., etc.** This requires the person sending in an alarm to remain at the box to operate the buttons.

In **Type 3** in addition to the various parts mentioned in Type 2, an **Automatic Controller** is placed at the Siren. This device consists of a contacting arrangement, rotated by a small electric motor. When the **Safety-Push-Button** is operated by pressing the "START" button **it starts the Controller**, and this connects and disconnects the power-circuit at pre-determined intervals, **resulting in the "up-and-down" note being given off by the Siren**, which will continue until the circuit is manually opened by pushing the "STOP" button.

In **Type 4** the same equipment is used as in Type 3, with the addition of an **Automatic Pre-determined-Time-Stop**. This device automatically **disconnects the power-circuit at the pre-determined time**.

In **Type 5** the Plain Type Siren is replaced by the **Coding-Type Siren** which, by means of an automatic device, forming an integral part of the siren proper, **sounds special codes**. Such codes are sent through a **Special Manual Transmitter**, located at some central point, such as Police-Headquarters, Telephone-Exchange, etc.

In **Type 6** the same equipment is used as in Type 5 except that **codes may be transmitted from special two-Round-Code-Sending Boxes** located throughout the community **or from the Manual Transmitter, or from both**. The standard Four-Round-Fire-Alarm Box cannot be used for Siren-Control on account of the length of time necessary to build up the Siren-note or tone, as the Siren code-signal will require four to six times as long a period as that of the standard fire alarm signal equipment employed in Systems "M" and "T."

(Continued on next page)

"THE BEST THAT

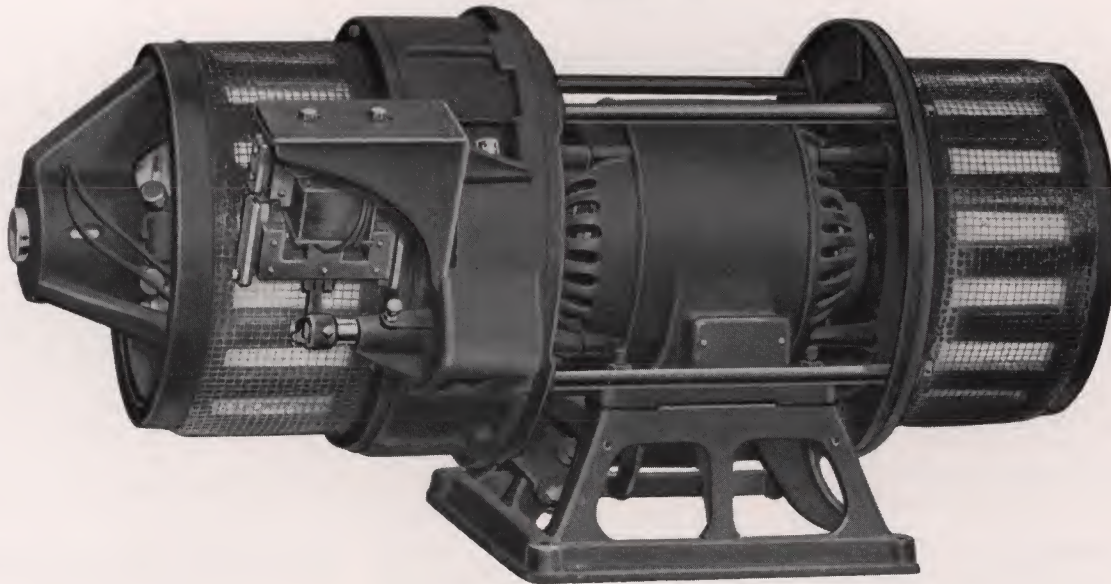


MONEY CAN BUY"

SYSTEM "V"

USING ELECTRIC MOTOR-DRIVEN SIRENS

(Continued from preceding page)



APPARATUS

- SIRENS**—Use Electric Sirens, bearing Code-Letter "V" listed under "Sirens" on pages 31 and 32.
- SAFETY HAND-CONTROL SWITCHES**—If system, described as Type 1 is to be installed use Safety Hand-Control Switches bearing Code-Letter "V" listed under "Safety-Hand-Control Switches" on page 33.
- SAFETY-PUSH-BUTTONS**—If system, described as Types 2, 3 or 4, is to be installed use Push-Buttons bearing Code-Letter "V," listed under "Safety Push-Buttons" on page 33.
- SAFETY-PUSH-BUTTON-BOXES**—If system, described as Types 2, 3 or 4, is to be installed use Push-Button-Boxes bearing Code-Letter "V" listed under "Safety-Push-Button-Boxes" on page 33.
- REMOTE-CONTROL-PANEL**—If system, described as Type 2, 3 or 4 is to be installed, use Remote-Control-Panel-bearing Code-Letter "V," listed under "Remote Control Panels" on page 34.
- AUTOMATIC CONTROL-PANELS**—If system, described as Type 3 is to be installed, use Automatic Control-Panel, bearing Code-Letter "V," listed under "Automatic-Control-Panels" on page 34.
- AUTOMATIC CONTROL PANEL WITH PRE-DETERMINED STOP**—If system, described as Type 4, is to be installed use Automatic Control with Pre-determined Stop, bearing Code Letter "V," listed under "Automatic Control Panels" on page 34.
- MANUAL TRANSMITTERS**—If system, described as Types 5 or 6 is to be installed use Manual Transmitter bearing Code-Letter "V" listed under "Slow-Movement, Two-Round Manual Transmitters" on page 25.
- CODE-CONTROL-UNIT**—If system, described as Types 5 and 6 is to be installed, use Code-Control-Unit, bearing Code-Letter "V" listed under "Code-Control-Units" on page 34.
- BOXES**—If system, described as Type 6, is to be installed use Two-Round Code-Sending-Boxes bearing Code-Letter "V" listed under "Boxes" on page 20.
- SUPERVISORY CONTROL-CABINET**—If system, described as Type 6 is to be installed, use Supervisory-Control-Cabinet bearing Code-Letter "V" listed under "Supervisory-Control-Cabinets" on page 33.
- LIGHTNING-ARRESTERS**—If system, described as Types 2, 3, 4, 5, or 6, is to be installed use Lightning Arrester bearing Code-Letter "V" listed under "Lightning-Arresters" on page 42.
- PUNCH REGISTERS**—If system, described as Types 5 and 6, is to be installed, use Punch Register bearing Code-Letter "V" listed under "Punch Registers" on page 43.

(Continued on next page)

"THE BEST THAT



TRADE MARK

MONEY CAN BUY"

SYSTEM "V"

USING ELECTRIC MOTOR-DRIVEN SIRENS

(Continued from preceding page)

WIRING

(Diagram of wiring included with each shipment or sent in advance when requested)

All wiring **must** be installed in accordance with the Underwriters' Regulations for Light and Power installations—signal-rules do not apply.

SIREN-CIRCUIT—For Siren-Circuit run three (3) N.E.C. rubber-covered wires from the control apparatus to the siren as per schedule below:

On 3-phase—60 cycle AC Circuits

	220 Volt	440 Volt
For 3 HP Siren	3 No. 10 B & S	3 No. 14 B & S
For 5 HP Siren	3 No. 8 B & S	3 No. 14 B & S

If the local Light & Power Co. will permit the use of a 3 or 5 HP Single-phase motor consult our Engineering Department for wiring data.

SIREN—The Siren is not directly connected with the exterior circuits. Central-Station-Apparatus and Siren must be connected in accordance with the wiring diagram furnished with the Siren.

BOX-CIRCUIT—For box-circuit **inside** the Central-Station-Building run No. 14 B & S N.E.C. rubber-covered wires, installed in conduit.

For **exterior circuits** use nothing smaller than No. 10 B & S triple-braid weatherproof wire, hard-drawn solid copper wire is preferred.

Note: For details on Pole-Line-Construction see "How to estimate the approximate cost of the outside wire-plant for a Municipal Fire Alarm System" on pages 47, 48 and 49.

STATIONS—There are three (3) types of Stations for Siren systems:

1. Manual Safety-Switches.
2. Safety-Push-Button-Boxes.
3. Two-Round Code-Sending Fire Alarm Boxes.

Manual Safety-Switches and **Safety-Push-Button-Boxes** should be installed the same as any switch in a motor-control-circuit. They operate closing a magnet-circuit which, in turn, mechanically operates the contactor-arms in the motor-circuit.

Unless specially arranged, Manual Safety-Switches and Safety-Push-Button-Boxes should be connected in multiple.

Code-Sending Boxes should always be connected in series with the central-station-apparatus.

The regulations governing Fire Alarm Systems for Municipal use do not include Electric Sirens. Inasmuch as Safety-Hand-Control-Switches or Safety-Push-Button-Boxes are connected in multiple, and are not under electrical supervision, we recommend **not more than ten (10) be placed on a circuit. It is safe, however, to use twenty (20) Code-Sending-Boxes** per circuit as they are under electric supervision.

"THE BEST THAT



MONEY CAN BUY"

FARADAY WEATHERPROOF FIRE ALARM BOXES for MUNICIPAL FIRE ALARM SYSTEMS



Faraday Fire Alarm Boxes for Municipal Fire Alarm Systems are manufactured in **four (4) Types** to meet all conditions of Municipal Fire Alarm service as follows:

- (a) **Succession Positive Non-Interfering Type Code-Sending** (Mechanism New York City Standard.)
- (b) **Positive Non-Interfering Type Code-Sending.**
- (c) **Plain Type Code-Sending.**
- (d) **Two-Round Plain Type Code-Sending.**

These, in turn, are supplied:

With Turnhandle-Spring-Lock or

With Turnhandle-Spring-Lock with Break-Glass-Guard.

Type (a) Boxes also furnished with Spadehandle-Automatic Door instead of Turnhandle Spring-Lock or Turnhandle Spring-Lock with Break-Glass-Guards (see page 19).

Positive Non-Interfering and Succession Positive Non-Interfering Type boxes for Municipal Fire Alarm Systems are made in **large sizes only**. **Plain Type** boxes for Municipal Fire Alarm systems are made in both **large and small sizes**. **Two-Round Plain Type** Boxes are made in small sizes only.

Faraday Weatherproof Code-Sending Fire Alarm Boxes are designed to give any signal required for standard fire-alarm-work, and automatically transmit the signal four times with absolutely perfect timing of each signal. They are so constructed that, after the lever has been pulled down and released, the signal cannot be disarranged either intentionally or unintentionally.

Plain Type Code-Sending Boxes will transmit their code four times after the lever has been pulled down as far as

it will go and no manipulation of the lever can cause confusion of the signal. However, should more than one box be pulled at about the same time, there is likely to be confusion or "jumbling" of the signals. It is for this reason that **Succession Positive Non-Interfering Boxes** or **Positive Non-Interfering Boxes** should be specified where first initial cost is not sole deciding factor. **Two-Round Plain Type Code-Sending boxes** are designed specially for operation of controlled circuits for motor-driven electric Sirens the characteristics of which do not permit the use of standard four-round boxes.

IMPORTANT POINTS OF SUPERIORITY

The mechanisms of Faraday Fire Alarm boxes have the following important points of superiority:

- (1) **Positive wiping self-cleaning contactors**, each of which is provided with duplex-silver-contacts.
- (2) **Contact-Springs of genuine phosphor-bronze** insulated from break-wheel by Bakelite rollers and mounted on separate individual Bakelite blocks. This completely overcomes the old-time trouble caused by breaking down of insulation, so frequently experienced in boxes where the two contact-springs were mounted on the same block.
- (3) **Solid-brass code- or break-wheel is rigidly mounted on shaft**. The break-wheel requires no insulation from shaft, which is provided with a square shoulder, making it impossible for the break-wheel to turn on the shaft or work loose, a trouble frequently found in other boxes.
- (4) **Strong powerful train of heavy cut-gears.**
- (5) **Transparent glass enclosing case over mechanism**, securely seated onto a heavy felt-gasket, keeps all dust out of mechanism, yet affords full view of every part of mechanism.
- (6) **Succession Positive Non-Interfering Boxes** furnished with inner shell made of aluminum and outer casing made of cast-iron.
- (7) **Automatic-Door-Type Succession Positive Non-Interfering Boxes** furnished with inner shells made of aluminum and outer casing made of either cast-iron or aluminum, **as specified** (see page 19).

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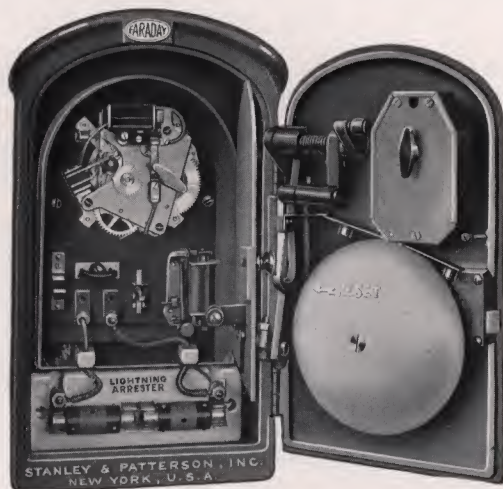
"THE BEST THAT



MONEY CAN BUY"



Model Nos. 6125 and 6135
Succession Fire Alarm Box



Model No. 6140
Succession Positive Non-Interfering Fire Alarm Box
with Automatic Door showing Mechanism, (glass-
enclosing-case removed), Testing-Devices and Lightning
Arresters.

(Described on next page)

FARADAY WEATHERPROOF CODE-SENDING FIRE ALARM BOXES

SUCCESION POSITIVE NON-INTERFERING NEW YORK CITY STANDARD FARADAY FIRE ALARM BOXES

Faraday Succession Positive Non-Interfering Boxes are so designed that when more than one box is pulled at or about the same time, only one box will transmit its signal; the others are held running—but not transmitting—until the first box has completed its four rounds. Not until then will a second box similarly transmit its signal, the other boxes following IN SUCCESION, until all boxes pulled have completed their four rounds. No interference or "jumbling" of signals is possible.

Faraday Succession Positive Non-Interfering Boxes—like all standard succession boxes—require periodic winding. This should be done after each alarm or test, but, while all other succession boxes have a capacity of only 32 rounds at the highest, Faraday Succession boxes are designed for 40 rounds, i. e., 10 complete four-round-signals.

All materials entering into the construction of Faraday Succession Positive Non-Interfering Boxes as well as workmanship are of the highest standard; all parts are interchangeable so that reserve-parts may be kept on hand and minor repairs may be made by any mechanic or electrician at a nominal cost.

Mechanisms are New York City Standard. They are protected by transparent glass-enclosing-cases, made dustproof by being securely seated on a heavy felt gasket, and permitting full view of every part of mechanism. These boxes are provided with Vacuum-tube-lightning-arresters and testing devices.

Inner casing made of aluminum with knobhandle or lock and key, as specified; outer casing made of cast-iron. Faraday Succession Positive Non-Interfering Boxes will be furnished tapped top and bottom for ½ inch conduit and are provided with insulating joint which is included in price. Made in large size only.

Cat. No.	Description	Price Each
6125-M	Succession Positive Non-Interfering Box in cast-iron outer case and aluminum inner shell with Turn-handle-Spring-Lock	\$235.00
6135-M	Succession Positive Non-Interfering Box in cast-iron outer case and aluminum inner shell with Turnhandle-Spring-Lock with Break-Glass-Guard.....	250.00

Note: In ordering Fire Alarm Boxes be sure to give code-number each box is to transmit as otherwise delivery may be delayed.

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"THE BEST THAT



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FARADAY WEATHERPROOF CODE-SENDING FIRE ALARM BOXES



Model No. 6140
Succession Fire Alarm Box
with Automatic Spadehandle Door



Model No. 6140
Succession Positive Non-Interfering Fire Alarm Box
with Automatic Door showing interior of Automatic
Door and Closed Door of Inner Shell.



Model Nos. 3134 and 3135
Positive Non-Interfering
With Break-Glass Guard

NEW YORK CITY STANDARD SUCCESSION POSITIVE NON-INTERFERING FARADAY FIRE ALARM BOXES WITH AUTOMATIC SPADEHANDLE DOOR

New York City Standard Succession Positive Non-Interfering Faraday Fire Alarm Boxes, to prevent false alarms, may be provided, as an additional feature, with an **automatic outer door** having an easily accessible spade-shaped handle. When this spade-handle is pulled as far as it will go it not only trips the mechanism of the box and starts transmitting the signal, **but, simultaneously, causes a loud-ringing bell to sound**, thus notifying all persons in the neighborhood that an alarm has been turned in at that box.

This type box **furnished only in New York City Standard pattern-case as shown in illustrations**. Outer case made of cast-iron or, at slight additional cost, of aluminum. Furnished tapped top and bottom for $\frac{1}{2}$ inch conduit and provided with insulating joint which is included in price.

Cat. No.	Description	Price Each
6140-M	Succession Positive Non-Interfering Fire Alarm Box with Automatic Door and Spadehandle Lever in cast-iron outer case.....	\$315.00
	For Aluminum outer case add to list-price.....	30.00

POSITIVE NON-INTERFERING TYPE—LARGE SIZE

Positive Non-Interfering Type Fire Alarm Boxes are equipped with devices which absolutely prevent "jumbling" of the code-signals should the levers of more than one box be pulled at the same time—there is no possibility of interference between boxes, with consequent loss of signal. These boxes are made only in the large size. All types are equipped with local non-interference pulls so that after the lever has once been pulled down and released, the signal cannot be intentionally or unintentionally disarranged by manipulation of the lever. Mechanisms are protected by dust-proof glass cases under seals, and inner shells made of aluminum to assure dependability, etc. Finished in glossy English-vermilion.

Positive Non-Interfering boxes will be furnished tapped top and bottom for $\frac{1}{2}$ inch conduit.

With Turnhandle-Spring-Lock

Model No.	Style	Price Each
3124-M	No Test	\$176.00
3125-M	With Test	186.00

With Turnhandle-Spring-Lock With Break-Glass Guard

No. Model	Style	Price Each
3134-M	No Test	\$196.00
3135-M	With Test	206.00

Note: In ordering Fire Alarm Boxes be sure to give code-number each box is to transmit as otherwise delivery may be delayed.

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TRADE MARK

FARADAY WEATHERPROOF CODE-SENDING FIRE ALARM BOXES

PLAIN TYPE

Large and Small Sizes

Plain Type Boxes, although possessing all the features designed for perfect timing of code-signals and impossibility of sending any but the pre-arranged signal from any box, will, under certain circumstances, interfere with each other and cause a "jumbled" code to be transmitted. Plain Type Boxes should only be used where the chances of more than one box being pulled at the same time are comparatively remote, or where, from lack of available funds, the lowest-price box must be used.

These boxes are made in two (2) sizes: the smaller size, Pattern Nos. 2025 and 2035 are designed for small installations where first cost is the controlling factor, the other size, Pattern Nos. 4024 and 4034 are much more rugged in construction and are strongly recommended.



Model No. 4024
Plain Type, Large Size



Model No. 4034
Plain Type
With Break-Glass Guard
Large Size



Model Nos. 2025 and 2725
Plain Type, Small Size

Model No.	Description	Price Each
LARGE SIZE		
4024-T	With Turnhandle-Spring-Lock	\$140.00
4034-T	With Turnhandle-Spring-Lock with Break-Glass-Guard	150.00
SMALL SIZE		
2025-T	With Turnhandle-Spring-Lock	71.00
2035-T	With Turnhandle-Spring-Lock with Break-Glass-Guard	77.00

NOTE: In ordering Fire Alarm Boxes be sure to specify code-number each box is to transmit, as otherwise delivery may be delayed.



Model Nos. 2035 and 2735
Plain Type
With Break-Glass Guard
Small Size

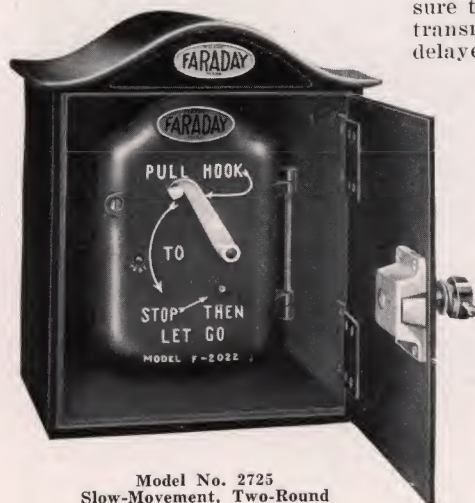
SLOW-MOVEMENT TWO-ROUND PLAIN TYPE

Small Size FOR ELECTRIC SIREN SYSTEM "V"

Two-Round Plain Type Faraday Fire Alarm Boxes are closed-circuit, code-sending and are designed especially for the operation of control-circuits for Motor-Driven Electric Sirens.

Two-Round Boxes will transmit two (2) complete rounds of the code or break-wheel at a slow enough speed for the motor-driven electric siren to build up its peculiar tone or note.

Two-Round Boxes are furnished drilled and tapped for 1/2" conduit.



Model No. 2725
Slow-Movement, Two-Round

Model No.	Style	Each Price
2725-V	With Turnhandle-Spring-Lock	91.00
2735-V	With Turnhandle-Spring-Lock with Break-Glass-Guard	97.00

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WEATHERPROOF FARADAY ENCLOSING-CASES ONLY



Model No. WP-424
Weatherproof
Enclosing Case
Large Size

Weatherproof Faraday Enclosing-Cases are extremely desirable in many exposed locations. While specifically designed for outside installation of Fire Alarm boxes their use is not limited to this class of work, for, in many cases, not only Fire Alarm Boxes but Bells, Telephones, Pushbuttons, etc., where exposed to dampness or mechanical injury, may be installed in these cases.

Outer doors are furnished, with turn-handle spring-lock with or without Break-Glass-Guards.

Weatherproof Faraday Enclosing-Cases are tapped and drilled top and bottom for $\frac{1}{2}$ inch or $\frac{3}{4}$ inch conduit, as specified.



Model No. WP-434
Weatherproof
Enclosing Case
Large Size



Model No. WP-225
Weatherproof
Enclosing Case
Small Size

Model No.	Description (See dimensions below)	Price Each
WP-424	Large Size Box with Turn-Handle Spring-Lock	\$84.00
WP-434	Large Size Box with Turn-Handle Spring-Lock with Break-Glass-Guard	94.00
WP-225	Small Size Box with Turn-Handle Spring-Lock	36.00
WP-235	Small Size Box with Turn-Handle Spring-Lock with Break-Glass-Guard	42.00



Model No. WP-235
Weatherproof
Enclosing Case
Small Size

DIMENSIONS of WEATHERPROOF FARADAY ENCLOSING CASES

Large Size							Small Size					
	Model No. WP-424			Model No. WP-434			Model No. WP-235			Model No. WP-235		
	Width	Height	Depth	Width	Height	Depth	Width	Height	Depth	Width	Height	Depth
Outside	12 $\frac{3}{4}$ "	17 $\frac{1}{2}$ "	6 $\frac{3}{4}$ "	12 $\frac{3}{4}$ "	17 $\frac{1}{2}$ "	6 $\frac{3}{4}$ "	9"	10 $\frac{1}{2}$ "	6 $\frac{1}{2}$ "	9"	10 $\frac{1}{2}$ "	6 $\frac{1}{2}$ "
Inside	9 $\frac{1}{2}$ "	11 $\frac{3}{4}$ "	4 $\frac{3}{4}$ "	9 $\frac{1}{2}$ "	11 $\frac{3}{4}$ "	4 $\frac{3}{4}$ "	7 $\frac{1}{8}$ "	8"	6"	7 $\frac{1}{8}$ "	8"	6"

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FARADAY MANUAL TRANSMITTERS

Faraday Manual Transmitters are designed to afford centralized control of a fire-signal-system.

They are made in three (3) types:

1. PLAIN TYPE.
2. PLAIN TYPE, ACCELERATED.
3. POSITIVE NON-INTERFERING TYPE, ACCELERATED.

This device is equipped with a set of removable code- or break-wheels—each wheel having teeth arranged to open and close the circuit as the wheel rotates—therefore each wheel will transmit only a pre-arranged signal associated with a fixed location in a given territory, or the signal may mean some pre-arranged information, such as "Police-Call"—"Riot"—"No-School-To-Day"—etc., etc. Thus in a given system there may be a set of wheels, one for each "actual" fire alarm box, one for a "dummy-box-location" and another set of wheels for special signals.

In operation, the Manual Transmitter is exceedingly simple.

The operator at Headquarters receives the alarm by telephone, messenger, etc. On receipt of the message he removes from the racking hook the particular code- or break-wheel for the signal desired—either box or special signal—and places the wheel on the shaft of the transmitter. Pulling the lever of the Transmitter down ONCE results in the mechanism starting immediately to transmit the desired signal. When the Transmitter comes to rest at the end of its complete set of signals, the code or break wheel is removed from the shaft of the transmitter and replaced on the racking hook.



Model No. 4835
Faraday Manual Transmitter

PLAIN TYPE

Plain-Type Faraday Manual Transmitters consist of a spring-driven gear-mechanism requiring a fixed time for one complete revolution of the code- or break-wheel-shaft. This time corresponds in value to the speed of the other fire alarm boxes in circuit with it.

This type Transmitter, if placed in circuit with other plain type boxes, will interfere, i. e., should another box be pulled while the transmitter is operating the signal will be "interfered" and result in a "jumbled" signal—a series of blasts or bell taps instead of a definite code-signal. The same interference will take place should the Transmitter be operated while a fire alarm box is operating.

Plain-type Faraday Manual Transmitters are generally used only where keeping down of initial cost is a dominating factor or where it is not desired to eventually change an installation of Plain-Type Boxes over to Positive-Non-Interfering Type Boxes.

(Continued on next page)

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FARADAY MANUAL TRANSMITTERS

(Continued from preceding page)

PLAIN-TYPE ACCELERATED

Plain-Type Accelerated Faraday Manual Transmitters have the same mechanism as the Plain-Type, **but are arranged to "speed-up" the rotation of the code- or break-wheel-shaft during the silent period of the code- or break-wheel.** This shortens the time required to transmit the signal.

FARADAY Manual Transmitters of the Accelerated Type accomplish the "speed-up" through a simple mechanism, **without extra or auxiliary gears.** (Patents Pending.)

There is no meshing or unmeshing or clashing of gears or unequal wearing of parts, as there is **ONLY ONE SET of GEARS** and, once assembled, the parts are fixed permanently.

Plain-Type Accelerated Faraday Manual Transmitters are **generally used in systems having central-alarm-equipment**—no exterior circuits or fire alarm boxes—where there is no chance for interference in the alarm. In such equipments there would be no advantage in installing a Positive-Non-Interfering Type Transmitter and nothing be gained by using the slow Plain-Type Transmitter, on the contrary, there would be a loss, since modern practice requires the fire signals to go through without delay.

POSITIVE NON-INTERFERING-TYPE ACCELERATED

Positive Non-Interfering Faraday Manual Transmitters are regularly provided with the **acceleration feature.** This type is used in systems having exterior circuits and fire-alarm-boxes. It will not interfere with the signal of an exterior fire alarm box because the Manual Transmitter cannot gain possession of the line should an exterior box be transmitting its signal. On the other hand, if the Manual Transmitter is in possession of the line, the exterior fire alarm box cannot secure the line.



Code-Wheel for
Manual Transmitter

Plain and Positive Non-Interfering Manual Transmitters cannot be installed in the same system. Should a Positive Non-Interfering Manual Transmitter be installed in a Plain-Type box-system, the Positive Non-Interfering feature will be lost, as the Plain-Type boxes cannot be electrically or mechanically locked out of the line. Likewise a Plain-Type Transmitter cannot be placed in a Positive Non-Interfering Box system, because the transmitter could not lock the boxes out of the line without interference in the signals.

In both the Plain-Type Accelerated and the Positive-Non-Interfering-Type Accelerated Faraday Manual Transmitters, provision is made for the sending of either one, two, three or four rounds of the signal. This feature cannot be furnished in the Plain-Type Manual Transmitter.

(Continued on next page)

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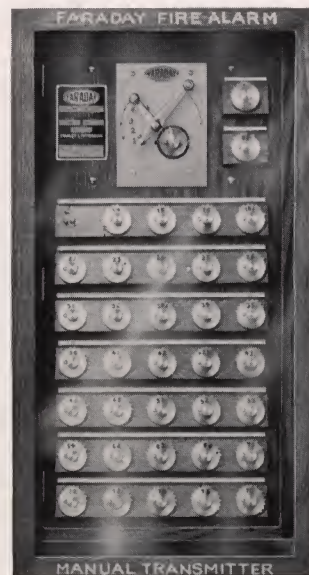
FARADAY MANUAL TRANSMITTERS

(Continued from preceding page)

ALL FARADAY Manual Transmitters are regularly mounted in highly polished hard-wood cabinets, having glass-door and latch.

The maximum code-wheel-capacity of one cabinet should not exceed 35 wheels, as otherwise the cabinet becomes unwieldy in size. For capacities beyond 35 code-wheels, another cabinet, the same size as the 35 wheel cabinet, is recommended, in order to make a balanced installation.

Faraday Positive Non-Interfering Manual Transmitters will work on circuits with standard Municipal Fire Alarm Boxes and apparatus of other makes and will, when properly installed, not cause interference of signals under any circumstances.



Model No. 4843
Positive Non-Interfering
Accelerated Manual Transmitter

CODE WHEELS NOT INCLUDED IN PRICE OF TRANSMITTERS

Model No.	Description	Code Wheel Capacity	Price Each (Code Wheels Extra)
4829-T	Plain Type Manual Transmitter.....	10	\$150.00
4830-T	Plain Type Manual Transmitter.....	15	155.00
4831-T	Plain Type Manual Transmitter.....	20	160.00
4832-T	Plain Type Accelerated Manual Transmitter.....	10	305.00
4833-T	Plain Type Accelerated Manual Transmitter.....	15	310.00
4834-T	Plain Type Accelerated Manual Transmitter.....	20	315.00
4835-T	Plain Type Accelerated Manual Transmitter.....	25	320.00
4836-T	Plain Type Accelerated Manual Transmitter.....	30	325.00
4837-T	Plain Type Accelerated Manual Transmitter.....	35	330.00
4838-M	Positive-Non-Interfering Accelerated Manual Transmitter.....	10	375.00
4839-M	Positive-Non-Interfering Accelerated Manual Transmitter.....	15	380.00
4840-M	Positive-Non-Interfering Accelerated Manual Transmitter.....	20	385.00
4841-M	Positive-Non-Interfering Accelerated Manual Transmitter.....	25	390.00
4842-M	Positive-Non-Interfering Accelerated Manual Transmitter.....	30	395.00
4843-M	Positive-Non-Interfering Accelerated Manual Transmitter.....	35	400.00
4844-M	Additional Cabinet same size as cabinet of 35 Code Wheel-Capacity, without mechanism and without code-wheels	45	65.00
4845-T	Code-Wheels for Plain Type Manual Transmitter.....	Each	3.00
4846-T	Code-Wheels for Plain Type Accelerated Manual Transmitter.....	Each	5.00
4847-M	Code-Wheels for Positive Non-Interfering Accelerated Manual Transmitter.....	Each	5.00

Note: If door switch and light are desired in cabinet of Manual Transmitter add \$40.00 to list price.

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TRADE MARK

SLOW-MOVEMENT TWO-ROUND MANUAL TRANSMITTERS

Plain-Type-Accelerated

For use only with Coding Type-Sirens for System "V"



Model No. 4856
Slow-Movement
Two-Round
Manual Transmitter

Faraday Slow-Movement Two-Round Manual Transmitters are designed to afford centralized control of a Coding-Type-Siren Fire Alarm System.

They are equipped with a set of removable code- or break-wheels—each wheel having teeth arranged to open and close the circuit as the wheel rotates—therefore each wheel will transmit only a pre-arranged signal associated with a fixed location in a given territory, or the signal may mean some pre-arranged information, such as "Police-Call"—"Riot"—"No-School-to-day"—etc., etc.

Slow-Movement Two-Round Manual Transmitters consist of a spring-driven gear-mechanism requiring a fixed time for one complete revolution of the code or break-wheel-shaft. This time corresponds in value to the speed of the Slow-Movement Two-Round Fire Alarm Boxes. They are arranged to speed up the rotation of the code- or break-wheel-shaft during the silent period of the code- or break-wheel. This shortens the time required to transmit the signal.

They are used only with Coding-Type-Sirens for System "V."

Slow-Movement Two-Round Manual Transmitters are regularly mounted in highly polished hard-wood cabinets having glass door and latch.

CODE WHEELS NOT INCLUDED IN PRICE OF TRANSMITTERS

Model No.	Description	Code Wheel Capacity	Price Each Exclusive of Code Wheels
4851-V	Slow-Movement Two-Round Manual Transmitter	10	\$305.00
4852-V	Slow-Movement Two-Round Manual Transmitter	15	310.00
4853-V	Slow-Movement Two-Round Manual Transmitter	20	315.00
4854-V	Slow-Movement Two-Round Manual Transmitter	25	320.00
4855-V	Slow-Movement Two-Round Manual Transmitter	30	325.00
4856-V	Slow-Movement Two-Round Manual Transmitter	35	330.00
4857-V	Code-Wheels for Two-Round Manual Transmitter	Each	5.00
NOTE: If door-switch and light are desired in Manual Transmitter cabinet add to list price			40.00

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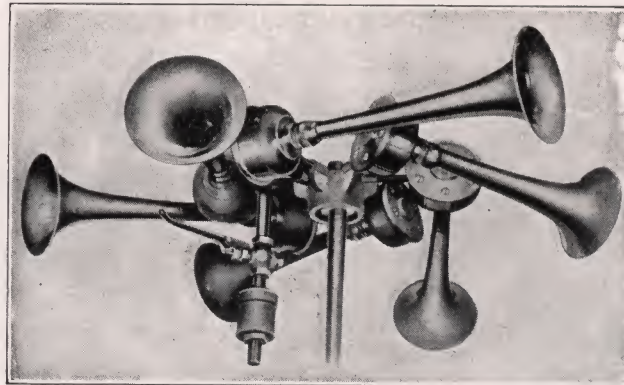
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SOUNDING DEVICES FOR MUNICIPAL FIRE ALARM SYSTEMS



COMPRESSED-AIR-HORNS

In Municipal Fire Alarm systems, two classes of operating energy may be used, viz.:

1. Fire Alarm Headquarters Energy—Storage Batteries in Duplicate
2. Public Utility Light and Power Energy

In the "Fire Alarm Headquarters" Class six (6) types of Sounding-Devices are used, viz.:

1. Compressed-Air-Horn Outfits
2. Compressed-Air-Whistles
3. Steam-Whistles
4. Tower-Bells with electrically-released strikers
5. Electro-Mechanical Gongs
6. Tapper-Bells

Compressed-Air-Horn Outfits, Compressed-Air or Steam-Whistles and Tower-Bells are known as General-Alarm Broadcasting-Devices. They are installed in central locations, particular attention being given to the "terrain" to be covered by the alarm, etc., etc.

Electro-Mechanical Gongs and Tappers are auxiliary devices. They are usually installed in the quarters of the firemen and chief-officers of the fire department.

In the "Public Utility" Class only one type of Sounding-Device is used, viz.:

Electric Motor-Driven Sirens

which may be either of the Plain-Type or of the Coding-Type.



STEAM-WHISTLE
or
AIR-WHISTLE



Electro-Mechanical
Gong



Electric-Motor-Driven Siren

The signal given by the Plain-Type-Siren may be either the typical high pitched Siren-note or it may be an "up-and-down" note.

With the Coding-Type Siren single-note-signals or blasts may be produced by either

- (a) Reversing the Siren-Motor, or
- (b) Lowering the speed of the motor to a range below audibility.

The first method, i. e., Reversing the Siren-Motor, is not recommended as it causes heavy electric surges on the line which may result in insulation-break-downs. Many Public-Service-Companies will not permit the use of this type of siren.

The second method, i. e., Lowering the speed of the Motor, is preferred as at no time the siren rotation is stopped. It is simply lowered below the range of the human ear. It makes use of a magnetic brake, similar to that used in elevator-work. The main-line-circuit is opened and the brake applied. This instantly retards rotation, but without stopping it. At the proper time-interval the main line circuit is again closed and the siren-note built up.

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FARADAY FIRE ALARM GONGS

SINGLE-STROKE ELECTRO-MECHANICAL FARADAY GONGS

For Operation on Battery Circuits

Single-Stroke Electro-Mechanical Faraday Gonges are designed to give a very loud, powerful signal with a minimum of current.

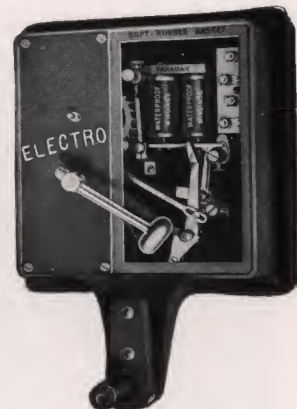
The blow on the gong is struck by a heavy ball on the end of a lever, released by the electric current, but **operated by a powerful clockspring**. These gongs give approximately 700 blows with one winding of the mechanism—50% more than any other make of electro-mechanical gong.

Single-Stroke Electro-Mechanical Faraday Gonges Model No. 2620 will be furnished, when specially ordered, at an addition of \$10.00 to the list price, with reliable Tell-tale contactors to give notification when gong needs rewinding.

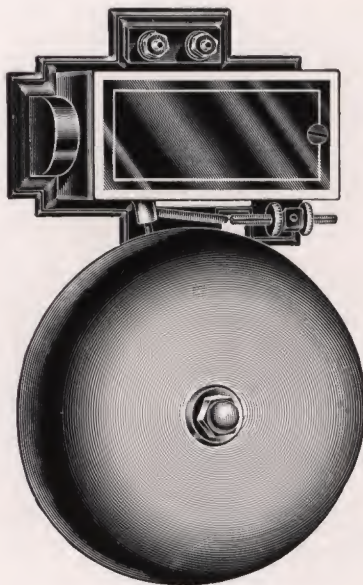
Electro-Mechanical Gonges are regularly provided—without extra charge—with standard **separable** conduit-box-backs, adaptable to both surface and flush conduit installations. Boxes regularly have $\frac{1}{2}$ " "knockouts," but will be furnished $\frac{3}{4}$ " when specially ordered.



Model No. 2620
Electro-Mechanical
Gong



Mechanism of Electro-
Mechanical Gong



Model No. 9506
Direct-Acting Tapper

Size Gong Inches	Cat. No. System "M"	Cat. No. System "T"	Price Each Without Tell-Tale Contactor
8	2620-M	2620-T	\$103.60
10	2620-M	2620-T	114.05
12	2620-M	2620-T	124.55
14	2620-M	2620-T	138.00
16	2620-M	2620-T	167.95
18	2620-M	2620-T	182.90

Tell-tale Contactors \$10.00 List additional.

FARADAY DIRECT-ACTING TAPPERS

For Operation on Battery Circuits

Faraday Direct-Acting Tappers are designed for operation on standard closed-circuit fire alarm systems. The resistance of the magnets is 20 ohms, and size of gong 6 inches.

The armature is normally held against the pole-pieces of the magnet, and the hammer away from the gong. When the circuit is opened the armature is released, and the hammer strikes the gong.

This gong is suitable only in comparatively quiet places such as the residence of officers of fire department, chief of police, etc.

Model No.	Description	Price Each
9506-M	Faraday 6 inch Direct-Acting Tapper	\$36.00
9506-T	Faraday 6 inch Direct-Acting Tapper	36.00

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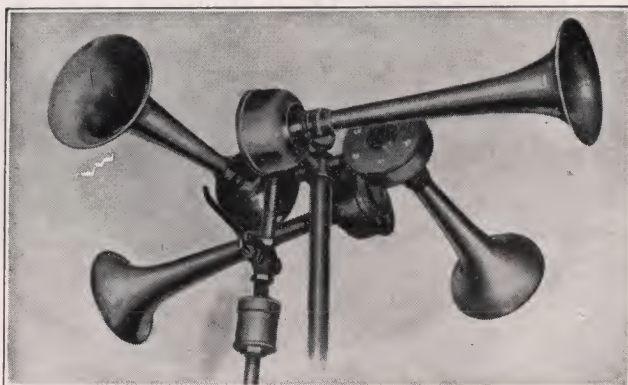
"THE BEST THAT



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FARADAY MUNICIPAL FIRE ALARM APPARATUS

FARADAY COMPRESSED-AIR-HORN OUTFITS



Model No. 4M
Faraday Compressed-Air-Horn-Set

Faraday Compressed-Air Horn Outfits provide the best means of sounding a fire alarm in towns, villages, etc., where Class "C" Alarms are permitted.

They are designed either for direct connection to the standard fire alarm circuits, so that an alarm originating in any code-ringing fire alarm box may be automatically broadcasted, or they may be operated by hand after the signal has been received from fire alarm circuits on gongs or registers.

They consist of 4 or 6 horns on a sturdy bracket for mounting on roofs or in towers, etc., and the air for their operation is contained in reservoirs which are maintained at a constant pressure by means of automatic electric compressors.

Signals can be heard, under favorable conditions, for approximately 3 to 5 miles.

Sufficient reserve capacity is always contained in the tanks or reservoirs for the blowing of several alarms, so that the Faraday Compressed-Air Horn Outfits do not depend on the integrity of the electric light and power circuits, i. e., in the event of a storm, should the light and power circuits be out of service on account of the breaking of wires, blowing of fuses, etc., this will not interfere with the horns to blow the signal desired. In this respect the horns are superior to any other sounding device which could be used.

Faraday Compressed-Air-Horn-Outfits are divided into two groups, viz.:

Group A—For installation in the same building in which the control apparatus, batteries, etc., for the fire alarm system are located, i. e., **Fire Alarm Headquarters**, and

Group B—For installation at a point or points **remote from Fire Alarm Headquarters**.

Both groups, A and B, may be either for **AUTOMATIC** operation or for **MANUAL** operation.

If for AUTOMATIC operation Faraday Compressed-Air-Horn-Outfits are supplied with the necessary devices for direct connection to the fire alarm circuit, consisting of **Faraday Uniform Timing Relay and Electric Valve**.

If for MANUAL operation Faraday Compressed-Air-Horn-Outfits are supplied only with **hand-operated Valves**.

Group B installations, **if for AUTOMATIC operation**, require, in addition to the Faraday Uniform Timing Relay and Electric Valve a **Storage Battery and means for charging same**.

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TRADE MARK

FARADAY COMPRESSED-AIR-HORN-OUTFITS

(Continued from preceding page)

Model No.	Description	Price per Outfit Complete
FOR MANUAL OPERATION		
At Fire Alarm Headquarters		
Outfit complete consisting of:		
54-M	1—4-Projector Air-Horn-Set	
	3—Compressed-Air-Tanks 18"x60", with necessary valves, pipe, nipples and fittings and 36 feet of pipe to run to Horn-Manifold.	
	1—Air-Compressor, air-cooled, gear-connected to a 110 volt or 220 volt AC or DC Motor, all mounted on a cast-iron sub-base.	
	1—Plain Screw-Type Lever-Valve.	
	4—Pulleys.	
	100 ft.—Flexible-steel Pull-Rope.....	\$3540.00
54-T	Same as 54-M	3540.00
56-M	Same as 54-M but with 6-Projector Air-Horn-Set	3680.00
56-T	Same as 56-M	3680.00
60-M	To change an installation from Manual operation to Automatic operation at Fire Alarm Headquarters, connecting the Air-Horn-Outfit to the circuit of a Standard Fire Alarm System, add to the equipment.	
	1—Electric Valve (in place of Plain Screw-Type Lever Valve)	
	1—Faraday Uniform Timing Relay.....	545.00
60-T	Same as 60-M	545.00
61-M	To change an installation from Manual operation to Automatic operation at Remote-Point, connecting the Air-Horn-Outfit to the circuit of a Standard Fire Alarm System, add to the equipment.	
	1—Electric Valve (in place of Plain Screw-Type Lever Valve)	
	1—Faraday Uniform Timing Relay	
	1—8-Cell Storage Battery of the sealed-in type and	
	1—Faraday Trickle-Charge-Control-Cabinet	1080.00
61-T	Same as 61-M	1080.00
FOR AUTOMATIC OPERATION		
At Fire Alarm Headquarters		
Outfit complete consists of:		
14-M	1—4-Projector Air-Horn-Set	
	3—Compressed-Air-Tanks 18"x60", with necessary valves, pipe, nipples and fittings and 36 feet of pipe to run to Horn Manifold.	
	1—Air-Compressor, air-cooled, gear-connected to a 110 volt or 220 volt AC or DC Motor, all mounted on a cast-iron sub-base.	
	1—Faraday Uniform Timing Relay	
	1—Electric Valve	
		3840.00
14-T	Same as 14-M	3840.00
16-M	Same as 14-M but with 6-Projector Air-Horn-Set	3980.00
16-T	Same as 16-M	3980.00
At Point Remote from Headquarters		
Outfit complete consists of:		
24-M	1—4-Projector Air-Horn Set.	
	3—Compressed-Air-Tanks 18"x60", with necessary valves, pipe, nipples and fittings and 36 feet of pipe to run to Horn Manifold.	
	1—Air-Compressor, air-cooled, gear-connected to a 110 volt or 220 volt AC or DC motor, all mounted on a cast-iron sub-base.	
	1—Faraday Uniform Timing Relay	
	1—Electric Valve.	
	1—8-Cell Storage Battery of the sealed-in type, and	
	1—Faraday Trickle-Charge-Control-Cabinet	
		4375.00
24-T	Same as 24-M	4375.00
26-M	Same as 24-M but with 6-Projector Air-Horn-Set	4515.00
26-T	Same as 26-M	4515.00
At Fire-Alarm-Headquarters or Point Remote from Fire-Alarm-Headquarters with Faraday Automatic Whistle Blower		
Outfit complete consists of:		
44-M	1—4-Projector Air-Horn-Set.	
	3—Compressed-Air-Tanks 18"x60", with necessary valves, pipe, nipples and fittings and 36 feet of pipe to run to Horn Manifold.	
	1—Air-Compressor, air-cooled, gear-connected to a 110 volt or 220 volt AC or DC motor, all mounted on a cast-iron sub-base.	
	1—Plain Screw-Type Lever-Valve.	
	1—Automatic Whistle-Blower and Counterweights	
		4410.00
44-T	Same as 44-M	4410.00
46-M	Same as 44-M but with 6-Projector Air-Horn-Set	4550.00
46-T	Same as 46-M	4550.00
NOTE: When ordering Compressed Air-Horn Outfits specify voltage and, if for AC, voltage and frequency of Motor for Air-Compressor.		

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FARADAY MUNICIPAL FIRE ALARM APPARATUS

A TYPICAL INSTALLATION OF A FARADAY COMPRESSED-AIR-HORN-OUTFIT



Faraday Compressed Air-Horn-Outfit Installation

Faraday Compressed-Air-Horn-Outfits are designed for use where it is not convenient to locate the horns at the Fire-Alarm Headquarters. Compressed Air-Horn-Outfits may also be used as auxiliary, or additional means of sounding automatically a fire-alarm at a point distant from Fire-Alarm Headquarters.

The installation, illustrated above, is for **Automatic** operation at **Remote-Point** and consists of:

- 3—Compressed-Air-Tanks, 18" x 60", with necessary valves, pipes and fittings,
- 1—Air-Compressor, 2½" x 3", air-cooled, gear-connected to a 1½ HP, 110 V or 220 V DC or AC single-phase or 3-phase, 60-cycle motor—all mounted on a cast-iron sub-base,
- 1—8-Cell, Model "PTM" Exide Storage-battery of the sealed-in type, and
- 1—Faraday Trickle-Charge-Control-Panel in N.E.C. Standard Steel-Cabinet.

The compressor has a capacity of 5½" cubic feet air per minute; it is gear-connected to a 1½ HP motor. The tanks are of heavy-duty-type, tested to 400 lbs. pressure, and are equipped with proper outlets for this particular fire-alarm-purpose.

The valves and fittings are Navy-specification-bronze, ground for air, and the air-strainer is of the latest improved pattern, permitting cleaning-out without disturbing the make-up of the pipe line.

The battery-plant consists of an Exide "PTM" sealed-in, 8-cell-Storage-Battery which is automatically maintained in a charged condition by the Faraday Trickle-Charge Control-panel shown in the upper right-side corner of the illustration.

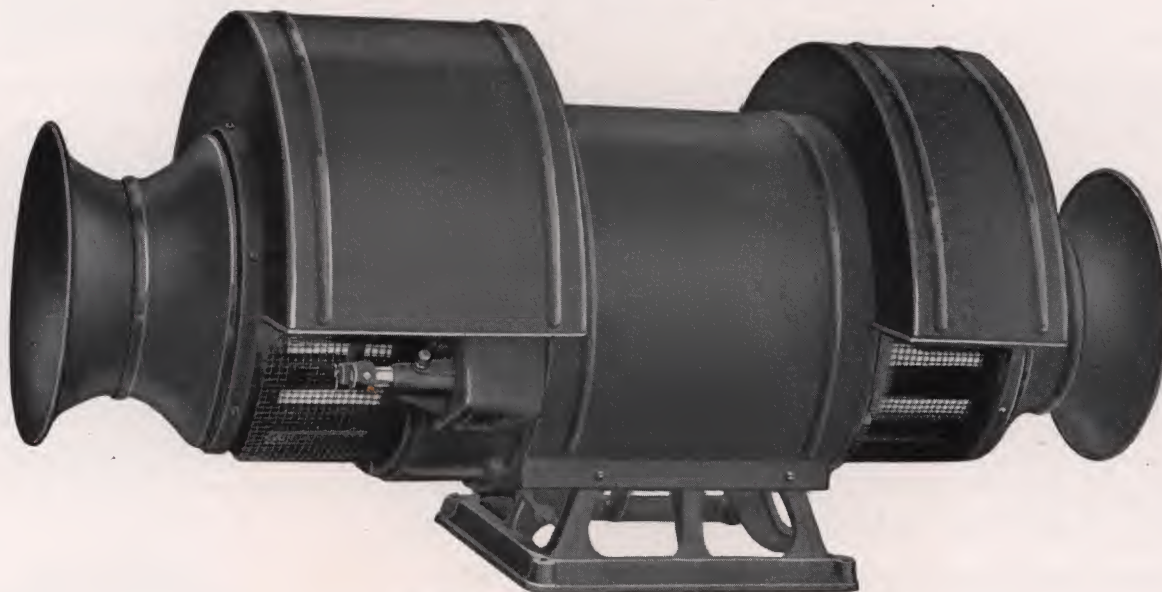
See preceding pages for description and prices of Faraday Compressed-Air-Horn Outfits.

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FARADAY MUNICIPAL FIRE ALARM APPARATUS

ELECTRIC MOTOR-DRIVEN SIRENS



Double-Head Electric Motor-Driven Siren

Electric Motor-Driven Sirens consist of two members—one fixed, called the stator, the other movable called the rotor. Both stator and rotor contain a series of openings or ports, either cylindrical or rectangular in shape. The rotor is so mounted into the stator that there is just sufficient clearance for easy rotation, and as the moving ports pass the fixed ports, a series of "air-puffs" result. As the speed of rotation increases, these air-puffs gradually come within the range of audibility and finally, at the maximum speed, a high-pitched, piercing shriek is produced. A siren may be rotated by any suitable means, but in commercial types electric motors are used on account of their adaptability to local power conditions, their compactness and reliability.

Electric Motor-Driven Sirens may be either of the **Plain-Type (Non-Coding)** or of the **Coding-Type**. The signal given by the **Plain-Type-Siren** may be either the typical high pitched siren-note or it may be an "up-and-down" note.

With the **Coding-Type Siren** single-note-signals or blasts may be produced by either

- (a) **Reversing the Siren-Motor, or**
- (b) **Lowering the speed of the Motor** to a range below audibility.

The first method, i. e., **Reversing the Siren-Motor** is not recommended as it causes heavy electric surges on the line which may result in insulation-break-downs. Many Public-Service-Companies will not permit the use of this type of siren.

The second method, i. e., **Lowering the speed of the Motor**, is preferred as at no time the siren-rotation is stopped. It is simply lowered below the range of the human ear. It makes use of a magnetic brake, similar to that used in elevator-work. The main-line-circuit is opened and the brake applied. This instantly retards rotation, without, however, stopping it. At the proper time-interval the main line circuit is again closed and the siren-note built up.

For Fire Alarm use, as a general-alarm-device, the characteristic high-pitched tone of the plain type siren is sufficient. The simplest type of circuit-closing device, a switch of the safety type which protects the operator from contact with the switch parts, is required. When a changing tone or note is desired, it may be obtained by either of the two (2) following methods:

- (a) by manually opening and closing the switch, or
- (b) by electrically opening and closing the circuit.

(Continued on next page)

"THE BEST THAT MONEY CAN BUY"



ELECTRIC MOTOR-DRIVEN SIRENS

(Continued from preceding page)

If the switch is **manually** opened and closed contact must be made and broken every nine or ten seconds so as to produce the "up-and-down" note of the siren.

The **electrically** opening and closing of the switch is much better as it produces the "up-and-down" note **automatically** at the proper interval of time.

Sirens of the motor-driven type are directly dependent for operation upon the reliability of a light-or power-circuit and where the available source of power is dependable they are efficient fire alarm devices but since the building up of the peculiar siren note or tone consumes more time than other alarm-devices require, the siren cannot be regarded as quite as desirable as standard fire alarm equipments for getting through the alarm, nor is a siren as reliable for the reason that a fire alarm standard system does not directly depend upon a light-or power-circuit for operation, but is supplied from a duplicate set of storage batteries. These batteries, in accordance with the regulations, have sufficient capacity to care for the normal current requirements of the system for 3 days beyond the failure of charging current-source.

However, the siren has, under certain conditions, an undisputed field in small communities. Electric Motor-Driven Sirens and their accessories are of the highest quality available, being manufactured with the care and precision that distinguishes all other Faraday Apparatus.

Non-Coding-Type Sirens are furnished Single-Head and Double-Head.

Coding-Type-Sirens are furnished only Double-Head.

The difference between the **Plain-Type-Siren** and the **Coding-Type-Siren** is that the latter is equipped with a magnetic brake.

NON-CODING-TYPE

Model No.	Description	Price Each
4870-V	Single-Head Electric Siren, 2 or 3 phase, 60 cycle, 220-440 Volt.....	\$650.00
4871-V	Single-Head Electric Siren, 1 phase, 60 cycle, 220-440 Volt.....	712.50
4872-V	Double-Head Electric Siren, 2 or 3 phase, 60 cycle, 220-440 Volt.....	850.00
4873-V	Double-Head Electric Siren, 1 phase, 60 cycle, 220-440 Volt.....	975.00
Note: 1, 2 or 3 phase, 60 cycle, 220-440 Volt Standard. Other frequencies or voltages to order, at additional cost. Prices upon request.		

CODING-TYPE

Model No.	Description	Price Each
4874-V	Double-Head Electric Siren, 5 HP, 3 phase, 60 cycle, 220 Volt.....	\$1500.00
4875-V	Double-Head Electric Siren, 5 HP, 1 phase, 60 cycle, 220 Volt.....	1650.00
(Not made in any other voltages, frequencies and horse-power.)		

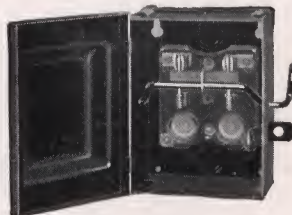
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FARADAY MUNICIPAL FIRE ALARM APPARATUS

For Siren System "V"



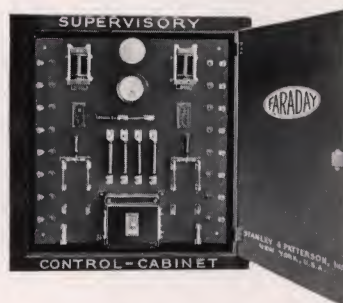
Model 4862
Safety Hand Control Switch



Model 4860
Safety Push-Buttons



Model 4861
Safety Push Button Box



Model No. 4868-V
Supervisory Control-Panel

SAFETY HAND-CONTROL SWITCHES

Faraday Safety Hand-Control Switches are designed for operation on 110 Volts for the control-circuit of automatic starting-devices for Electric Motor-Driven Sirens. They eliminate the use of the dangerous, open knife-blade switches and make it impossible for the operator to come in contact with any current-carrying part of the switch.

Model No.	Description	Price Each
4862-V	Safety Hand Control Switch in pressed-steel-box	\$3.75

SAFETY PUSH BUTTONS

Faraday Safety Push-Buttons are designed for operation on 110 Volt circuits for Electric-Motor-Driven Sirens. They are intended for installation indoors, protected from the weather and from mischievous or malicious operation. They are rugged and so constructed that it is impossible for the operator to make contact with any current-carrying wire or device.

Model No.	Description	Price Each
4860-V	Safety Push-Button	\$12.50

SAFETY PUSH BUTTON BOXES

Faraday Safety Push Button Boxes are designed for the housing of Safety-Push-Buttons for Siren System "V" where it is desired to install these outdoors. Boxes are of the weatherproof type, provided with Turnhandle Spring-Lock with Break-Glass-Guard. Push Buttons included in price.

Model No.	Description	Price Each
4861-V	Safety Push-Button Boxes with Turnhandle Spring-Lock with Break-Glass-Guard, including Push-Buttons	\$54.50

SUPERVISORY CONTROL-PANELS

In Pressed-Steel Cabinet

Faraday Supervisory Control Panels for Siren System "V," are strongly recommended for the reason that they supply the current for the box-circuits through a "Step-down"-Transformer, reducing the relatively high voltage, required for the actual operation of the siren, to a lower voltage. Therefore the danger of electric shock due to insulation-breakdown, etc., is practically eliminated.

Faraday Supervisory Control Panels consist of an ebony-asbestos panel, having mounted thereon Trouble - Relay, Contactor - Relay, Balancing - Resistance, Switches, Milli-Ammeter and a "Step-down"-Transformer as source of energy for the box-circuits.

All parts of the panel are under constant electrical supervision, and any interruption of current-supply results in a trouble-signal.

Model No.	Description	Price Each
4868-V	Supervisory Control-Panel in pressed-steel Cabinet, complete with Trouble-Bell and Trouble-Bell-Battery	\$875.00

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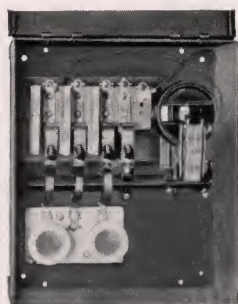
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FARADAY MUNICIPAL FIRE ALARM APPARATUS For Siren System "V"

REMOTE-CONTROL-PANELS

In Pressed-Steel-Cabinets



Model No. 4863-V
Faraday Remote-Control-Panel

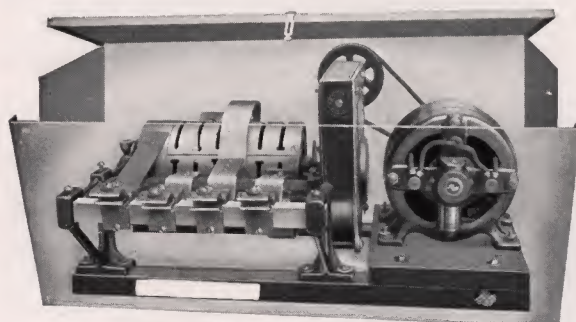
Faraday Remote-Control Panels are designed for control and operation of Non-Coded Sirens from two or more remote Fire Alarm Stations, such as Safety-Push-Buttons and provide an efficient and simple method for sounding the siren-alarm.

They consist of an ebony-asbestos panel in pressed-steel-cabinet, having mounted thereon a magnetically operated multiple-contact-switch with under-voltage-protection and release, and overvoltage-protection for the Siren-Motor.

When start-button is depressed it automatically closes the magnetic circuit at the panel, and this closes mechanically the contact-fingers, thus establishing the power-circuit to the Electric-Motor-Driven Siren.

Regularly furnished with (2) Safety-Push-Buttons or Safety-Push-Button-Boxes, as specified. As many more "Start and Stop" Stations may be used as are desired.

Model No.	Description	Price Each
4863-V	Remote-Control-Panel in Pressed-Steel-Cabinet complete with two (2) Safety Push Buttons	\$100.00
4864-V	Remote Control-Panel in Pressed-Steel-Cabinet with two (2) Weatherproof Safety Push Button-Boxes	184.00
4860-V	Additional Safety Push Buttons	12.50
4861-V	Additional Weatherproof Safety Push Button-Boxes with Turnhandle-Spring-Lock with Break-Glass-Guard	54.50



Model No. 4865-V
Faraday Automatic Control-Panel

AUTOMATIC CONTROL-PANELS

In Pressed-Steel-Cabinets

Faraday Automatic Control Panels are designed for the operation of Electric Motor-Driven Sirens to produce the "Up- and Down-" Note or Tone by automatically opening and closing the power-circuit at fixed intervals.

Faraday Automatic Control Panels with Pre-Determined Stop are in operation exactly like Automatic Controls but with the added feature of an automatic cutout which, at a pre-determined period, opens the Siren-circuit and stops the Siren at the proper time when it is desired that the alarm be ended.

This feature automatically eliminates a continuance of the sounding of the Siren beyond the time necessary for the alarm-signal.

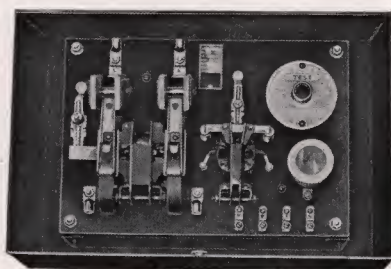
Model No.	Description	Price Each
4865-V	Automatic Control-Panel in Pressed-Steel-Cabinet	\$150.00
4866-V	Automatic Control-Panel with Pre-determined Stop in Pressed-Steel-Cabinet.	270.00

SIREN CODE-CONTROL PANELS

In Pressed-Steel Cabinet

Faraday Siren Code Control-Panels are designed to convey the impulses of the code-wheel in a Fire Alarm Box or Transmitter, or any other signals, sent over the Fire Alarm Circuit, to the Siren.

It consists of an ebony-asbestos panel, having mounted thereon a Magnetic Contactor for the Siren-Motor, also a Magnetic Controller and Supervisory-Relay, reinforced by an inverse Time-Limit-Cutout. Furnished in pressed-steel cabinet with Yale-locked door. Test-button shown in illustration may be operated when door is locked, as it is conveniently located outside of the cabinet.



Model No. 4870
Siren Code Control Panel

Model No.	Description	Price Each
4870-V	Siren Code Control Panel in pressed-steel cabinet.	\$357.50

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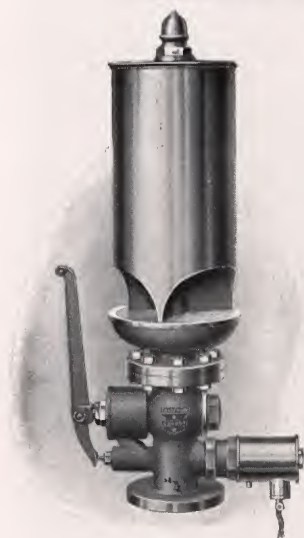


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FARADAY MUNICIPAL FIRE ALARM APPARATUS

FARADAY WHISTLES AND ELECTRIC VALVES

For Steam or Compressed-Air Operation



Model No. 11031
Faraday
Steam Whistle and Electric Valve

Faraday Steam or Compressed Air Whistles may be used, under certain circumstances, in connection with Fire-Alarm-Systems. They are made for direct connection to standard Municipal Fire-Alarm Circuits by means of Faraday Electric Whistle-Valves or Faraday Automatic Whistle-Blowers. Faraday Electric Whistle-Valves are designed for operation on DC only, and **require a separate source of current from the rest of the Fire-Alarm System for their operation.**

Consult our Engineering Department for detailed information.

Model No.	Description	Price Each
11030	1½" Faraday Electric Valve with 6" Whistle	\$270.00
11031	1½" Faraday Electric Valve only	203.00
11032	2" Faraday Electric Valve with 8" Whistle	384.00
11033	2" Faraday Electric Valve only	230.00
11034	2½" Faraday Electric Valve with 10" Whistle	554.00
11035	2½" Faraday Electric Valve only	268.00
11036	3" Faraday Electric Valve with 12" Whistle	810.00
11037	3" Faraday Electric Valve only	366.00

FARADAY AUTOMATIC WHISTLE-BLOWERS



Model No. 11040
Faraday Automatic
Whistle-Blower,
Showing Connection
to Whistle and Valve

Faraday Automatic Whistle-Blowers are designed for direct connection to standard Municipal fire-alarm-circuits for the automatic blowing of Steam, or Compressed-Air-Whistles direct from the circuits.

Automatic Whistle Blowers are similar in action to electro-mechanical gongs. A heavy, weight-actuated clock-work-mechanism is electrically released by impulses sent over the firm alarm circuit. and each time the circuit is opened, one blast is given by the whistle, as the whistle-valve-lever is rigidly connected to the operating-lever of the blowing-machine.

They are furnished complete with table, weights and pulleys. The magnets are wound to 20 ohms resistance.

WHISTLE AND VALVE ARE NOT INCLUDED IN PRICE OF WHISTLE BLOWER

Model No.	Description	Price Each
11040	Faraday Automatic Whistle Blower complete	\$630.00

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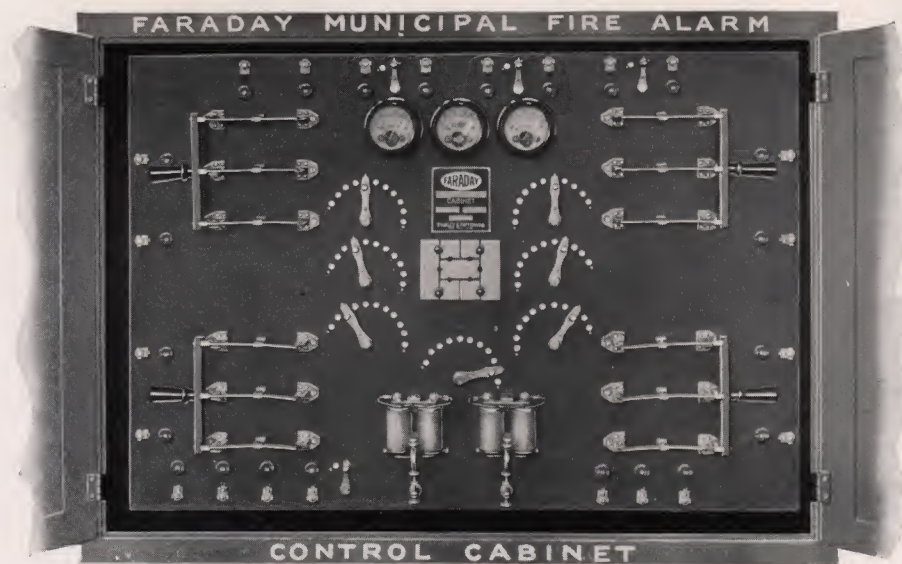
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FARADAY MUNICIPAL FIRE ALARM APPARATUS

FIRE ALARM CONTROL CABINETS



Model No. 111

Faraday Municipal Fire Alarm Control Cabinet

Faraday Municipal Fire Alarm Control Cabinets are designed for the control and supervision of Municipal Fire Alarm Circuits. They consist of ebony-asbestos or slate panels, having mounted thereon the necessary Trouble-Relays, Meters, Terminals, Fuses, etc. They are furthermore provided with all necessary Ground-Tests, Balancing Resistances, and for systems where more than one circuit is used, with the proper switches to permit the cutting out of any circuit which may be in trouble, as in the case of a ground or break. They maintain the balance of the system in operating order while such trouble is being located.

Cabinets are finished in glossy English-vermilion and control mechanisms are back-connected. Terminals on panels are latest type Underwriters-pattern, with each terminal so plainly marked that the connections of circuit wires to mains, boxes, gongs and trouble-bells, etc., can be readily made by any good electrical man. Glass windows are provided in doors to permit ready reading of meters without opening the doors.

Model No.	Number Circuits	Price Each
111-M	1	\$400.00
112-M	2	720.00
113-M	3	920.00

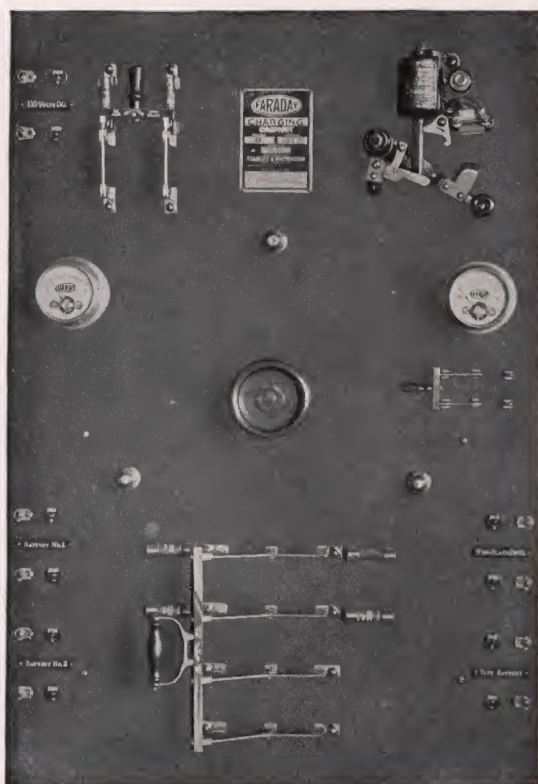
Model No.	Number Circuits	Price Each
114-M	4	\$1120.00
111-T	1	400.00

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Model No. 37
Faraday Fire Alarm Charging-Control-Panel
(Pressed-Steel-Cabinet furnished but not shown in illustration)

FARADAY MUNICIPAL FIRE ALARM APPARATUS

CHARGING-CONTROL-PANELS

In Pressed-Steel Cabinets

With or Without Motor-Generator or Rectifier

FOR MANUAL OPERATION

Faraday Manual Fire Alarm Charging-Control-Panels are necessary for the control of charging storage batteries for fire alarm systems. They consist of ebony-asbestos or slate panels, having mounted thereon the necessary Terminals, Fuses, Meters, Reverse-Current and No-Load-Relays, Throw-Over-Switches for the manual transferring of batteries, etc., all being enclosed in pressed-steel cabinet with Yalelocked doors. Glass-windows are provided to permit reading of meters without opening doors. Will be furnished mounted on legs, without cabinet, at no extra charge, if so specified at time of ordering.

Faraday Charging-Control Panels are furnished to charge from DC 110-125 Volt or 220-250 Volt Light and Power Circuits, from DC Motor-Generator 110-125 Volt or 220-250 Volt, from AC Motor-Generator 100-110 Volt or 220-250 Volt, or from AC Rectifier 100-110 Volt or 220-250 Volt.

When ordering Charging-Control Panels specify Models No., voltage, and, if for AC, voltage, number of cycles and phase.

Model No.	Description	To Charge From	Price Each
37-M	Charging-Control-Panel in Cabinet with Variable Resistance-Control	DC 110-125 Volt Light and Power Circuit.....	\$375.00
38-M	Charging-Control-Panel in Cabinet (Motor-Generator not included)	DC Motor-Generator, 110-125 V or 220-250 V..	386.00
39-M	Charging-Control-Panel in Cabinet (Motor-Generator not included)	AC Motor-Generator, 100-110 V or 220-250 V..	380.00
40-M	Charging-Control-Panel in Cabinet (Rectifier not included)	AC Rectifier, 115 Volt..... AC Rectifier, 230 Volt.....	360.00 450.00
41-M	Charging-Control-Panel in Cabinet including DC Motor-Generator	DC Motor-Generator, 110-125 V or 220-250 V..	680.00
42-M	Charging-Control-Panel in Cabinet, including AC Motor-Generator	AC Motor-Generator, 100-110 V or 220-250 V..	675.00
43-M	Charging-Control-Panel in Cabinet, including AC Rectifier	AC Rectifier, 115 Volt..... AC Rectifier, 230 Volt.....	675.00 765.00
37-T	Charging-Control-Panel in Cabinet with Variable Resistance-Control	DC Rectifier, 110-125 Volt.....	375.00
38-T	Charging-Control-Panel in Cabinet (Motor-Generator not included)	DC Motor-Generator, 110-125 V or 220-250 V..	386.00
39-T	Charging-Control-Panel in Cabinet (Motor-Generator not included)	60 cycle single phase, AC Motor-Generator, 100-110 Volt or 220-250 Volt.....	380.00
40-T	Charging-Control-Panel in Cabinet (Rectifier not included)	AC Rectifier, 115 Volt..... AC Rectifier, 230 Volt.....	360.00 450.00
41-T	Charging-Control-Panel in Cabinet, including DC Motor-Generator	DC Motor-Generator, 110-125 V or 220-250 V..	680.00
42-T	Charging-Control-Panel in Cabinet, including AC Motor-Generator	AC Motor-Generator, 100-110 V or 220-250 V..	675.00
43-T	Charging-Control-Panel in Cabinet, including AC Rectifier	AC Rectifier, 115 Volt..... AC Rectifier, 230 Volt.....	675.00 765.00

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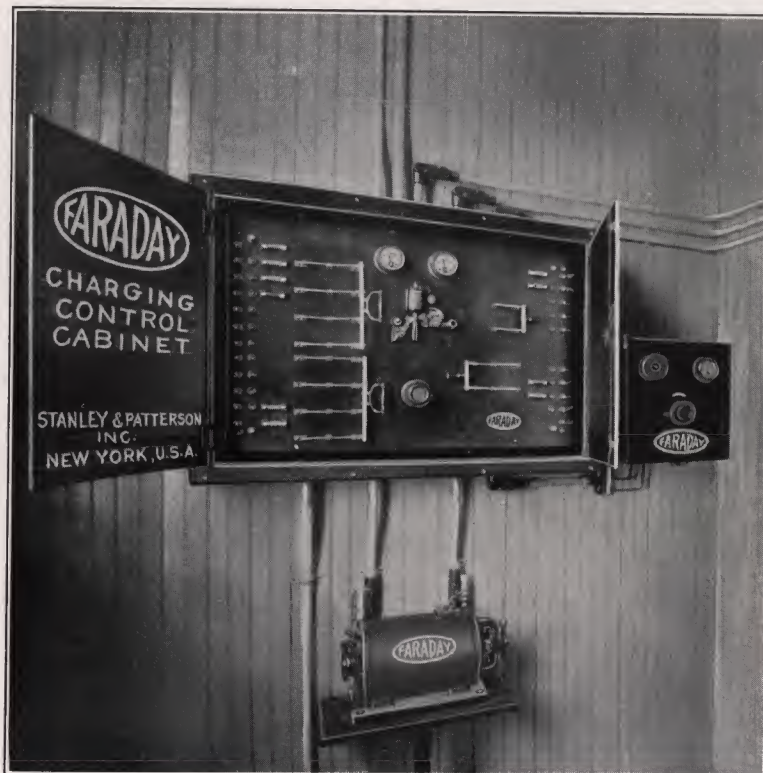
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FARADAY MUNICIPAL FIRE ALARM APPARATUS

CHARGING CONTROL OUTFITS

WITH MOTOR-GENERATOR AND RECTIFIER IN RESERVE



Model Nos. 715 and 725
Faraday Municipal Charging Control-Outfit.

Faraday Municipal Charging Control Outfits with Motor-Generator and Rectifier in reserve are designed strictly in accordance with the latest recommendations of the National Fire Protection Association to charge storage-batteries used on Municipal Fire Alarm Systems.

With the Rectifier in reserve standard approved means for charging the batteries are always available even though the motor-generator should require repairs, and, with the addition of an extra rectifier-bulb, a corresponding increase of safety is provided.

Faraday Municipal Charging-Control-Outfits consist of an ebony asbestos, or slate-panel, having mounted thereon the necessary instruments, terminals, fuses, meters, switches, etc.—all being enclosed in a pressed-steel-cabinet with Yale-locked doors—or mounted on legs (without cabinet), if so specified at time of ordering—also of a Motor-generator and a Rectifier of sufficient capacity to charge up to 30-cell battery.

Faraday Municipal Charging Control Outfits are furnished for 100-110 Volt or 220-250 Volt AC 60 cycles (25, 30, 40 and 50 cycles to order).

When ordering specify voltage and frequency.

Model No.		Price Each
715-M	Faraday Charging Control Outfit complete with 115 V Motor-Generator and Rectifier	\$1250.00
725-M	Faraday Charging Control Outfit complete with 220 V Motor-Generator and Rectifier	1325.00
715-T	Faraday Charging Control Outfit complete with 115 V Motor-Generator and Rectifier	1250.00
725-T	Faraday Charging Control Outfit complete with 220 V Motor-Generator and Rectifier	1325.00

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FARADAY MUNICIPAL FIRE ALARM APPARATUS

FIRE ALARM TROUBLE-BELLS

WITH SPECIAL-TONED-GONGS



Model No. 2502
Fire Alarm Trouble-Bell

Trouble-Bells are designed for use with Faraday Municipal Fire Alarm Control-Cabinets to indicate, by continuous ringing, breaking of the circuit-wires, failure of operative current, etc. They are weatherproof-type with conduit-box-backs and equipped with Faraday "High-Power" armatures. Complete Bakelite-insulation-detail. Mechanisms are entirely enclosed and have rubber gaskets, protecting them from dust and dampness.

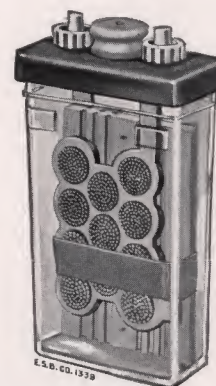
One bell is required for each closed-circuit Faraday Municipal Fire Alarm System.

Model No.	To operate on	Price Each
2502-M	Storage Battery	\$20.00
2502-T	Storage Battery	20.00
2502-V	Storage Battery	20.00

FIRE ALARM STORAGE BATTERIES

For Faraday Fire Alarm Systems, "Couple-Type" Storage Batteries are usually installed. Information regarding the ampere-hour capacity and number of cells will be found in the description of each Fire Alarm System.

Storage Batteries are furnished (unless otherwise specified) in **duplicate-sets**; each set consisting of a definite number of cells complete with the necessary supports, insulators, etc., **but no shelving.**



Model No. 1201
Storage Battery-Cell



Model No. 1210
Storage Battery

Model No.	System	Sets Required	Number of Cells Per Set	Ampere-Hour Capacity	Price
1215-M	"M"	Double	15	12	per 30 cells \$390.00
1218-M	"M"	Double	18	12	per 36 cells 468.00
1220-M	"M"	Double	20	12	per 40 cells 520.00
1225-M	"M"	Double	25	12	per 50 cells 650.00
1230-M	"M"	Double	30	12	per 60 cells 780.00
1210-T	"T"	Double	10	12	per 20 cells 260.00
1212-T	"T"	Double	12	12	per 24 cells 312.00
1215-T	"T"	Double	15	12	per 30 cells 390.00

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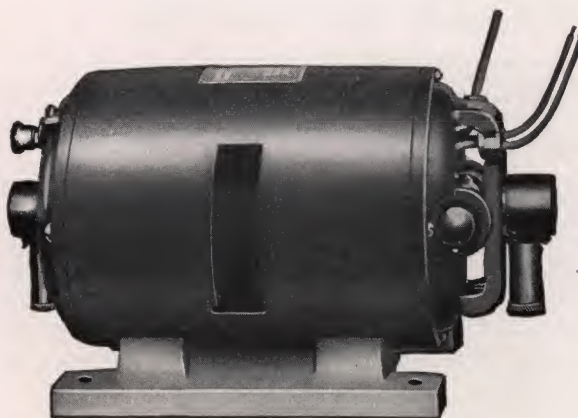
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Model No. 1113
Faraday Motor-Generator

FARADAY MUNICIPAL FIRE ALARM APPARATUS

STORAGE BATTERY-CHARGING MOTOR-GENERATORS

Faraday Motor-Generators are especially designed for charging storage batteries for fire alarm systems. These sets are of very rugged construction, of moderate weight, and built with the highest grade of material and workmanship.

They are shunt-wound, and supplied with motors wound for DC or AC as specified.

Model No.	Capacity Watts	Voltage Output	Motor to operate on Voltage	Price Each
1113-M	100	20-50	110 DC	\$208.00
2113-M	100	20-50	110 AC (50-60 Cy)	202.00
1223-M	240	20-50	110 DC	246.00
2223-M	240	20-50	110 AC (50-60 Cy)	236.00
1113-T	100	20-50	110 DC	208.00
2113-T	100	20-50	110 AC (50-60 Cy)	202.00
1223-T	240	20-50	110 DC	246.00
2223-T	240	20-50	110 AC (50-60 Cy)	236.00

NOTE: DC 220 volt Motor-Generators will be furnished at \$25.00 addition to above list prices.

AC 220 volt Motor-Generators will be furnished without extra charge.

50-60 cycle standard, but 25, 30, 40 cycles will be furnished without extra charge if so specified when ordering.

When ordering be sure to specify voltage of motor, and if AC, also number cycles and phase.

FIRE ALARM RECTIFIERS

Rectifiers of only the 5 and 6 ampere type are recommended for fire-alarm use. They are furnished in four (4) models, viz.:

Model No. 191. 115 Volt normal AC Voltage, to charge up to and including 12 cells Storage Battery.

Model No. 141. 230 Volt normal AC Voltage, to charge up to and including 12 cells Storage Battery.

Model No. 492. 115 Volt normal AC Voltage, to charge up to and including 30 cells Storage Battery.

Model No. 795. 230 Volt normal AC Voltage, to charge up to and including 30 cells Storage Battery.

These models are equipped with regulator (reactance with taps).

Model No.	To operate from Normal AC Voltage of	Charging Rate DC Amperes	Maximum Number of Cells to be charged	60 Cycles Price Each
191-M	100-125	5	12	\$200.00
141-M	220-250	5	12	237.50
492-M	100-125	6	30	250.00
795-M	220-250	6	30	300.00
191-T	100-125	5	12	200.00
141-T	220-250	5	12	237.50
492-T	100-125	6	30	250.00
795-T	220-250	6	30	300.00

NOTE: Above prices include one (1) extra reserve-bulb. Additional bulbs will be furnished at list-price of \$20.00. When ordering Rectifiers specify Model No. and number cycles. Prices for 25, 30, 40 or 50 cycles on application.

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AUXILIARY DEVICES FOR FARADAY MUNICIPAL FIRE ALARM SYSTEMS

FARADAY TRICKLE-CHARGING CABINETS

IN PRESSED-STEEL CABINETS

Faraday Trickle-Charging Cabinets are designed to trickle-charge storage-batteries in use for electrically-operated valves for alarm-whistles or air-horns from an AC circuit.

Faraday Trickle Charging Cabinets consist of an ebony-asbestos or slate-panel, having mounted thereon the necessary terminals, switches, meter and other devices for the connection and control of the charger, battery and external circuit.

The charging rate may be fixed at any value between the limits of 0 and 0.75 amperes.

Outfits are self contained, mounted in pressed-steel cabinets having Yale-locked door and 2 keys.

Made in four (4) models, viz.:

No. 100 for charging up to 6 cells, from 115 volt Primary.

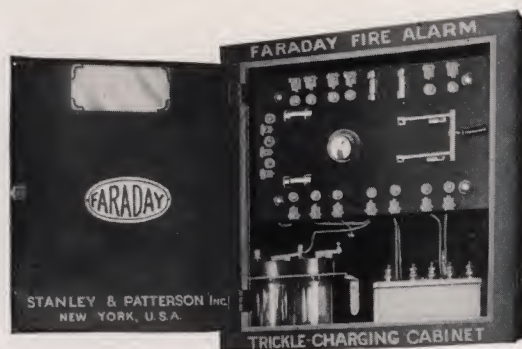
No. 101 for charging 7 to 12 cells, from 115 volt Primary.

No. 102 for charging up to 6 cells, from 230 volt Primary.

No. 103 for charging 7 to 12 cells, from 230 volt Primary.

Standard finish: Red Enamel. Special finishes to order at an addition to list price of \$5.00.

Specify Model No., Line Voltage and Cycles when ordering. 60 cycles standard, 25, 30, 40 and 50 cycles to order.



Model No. 100
Faraday Trickle-Charging Cabinet

Model No.	Description	Price Each
100-M	Trickle-Charging Cabinet, to charge up to 6 cells, from 115 Volt.....	\$350.00
100-T	Trickle-Charging Cabinet, to charge up to 6 cells, from 115 Volt.....	350.00
101-M	Trickle-Charging Cabinet, to charge 7 to 12 cells, from 115 Volt.....	395.00
101-T	Trickle-Charging Cabinet, to charge 7 to 12 cells, from 115 Volt.....	395.00
102-M	Trickle-Charging Cabinet, to charge up to 6 cells, from 230 Volt.....	400.00
102-T	Trickle-Charging Cabinet, to charge up to 6 cells, from 230 Volt.....	400.00
103-M	Trickle-Charging Cabinet, to charge 7 to 12 cells, from 230 Volt.....	445.00
103-T	Trickle-Charging Cabinet, to charge 7 to 12 cells, from 230 Volt.....	445.00

FARADAY UNIFORM-TIMING RELAYS

Faraday Uniform Timing Relays are designed to automatically control the duration of the signal transmitted from any fire alarm-box, so that a **uniform length of blast** on auxiliary sounding devices, such as motor-driven air-horns, etc., may be obtained.

Without the Faraday Uniform Timing Relay, should a break occur in the fire alarm system, the sounding device would blow continuously; the **Faraday Uniform Timing Relay** limits the blast to a definite period.

The magnets of Faraday Uniform Timing Relays are wound to operate on closed-circuit fire alarm systems "M" and "T."

Model No.	Description	Price Each
5000-M	Uniform-Timing Relay	\$200.00
5000-T	Uniform-Timing Relay	200.00



Model No. 5000
Faraday Uniform Timing Relay

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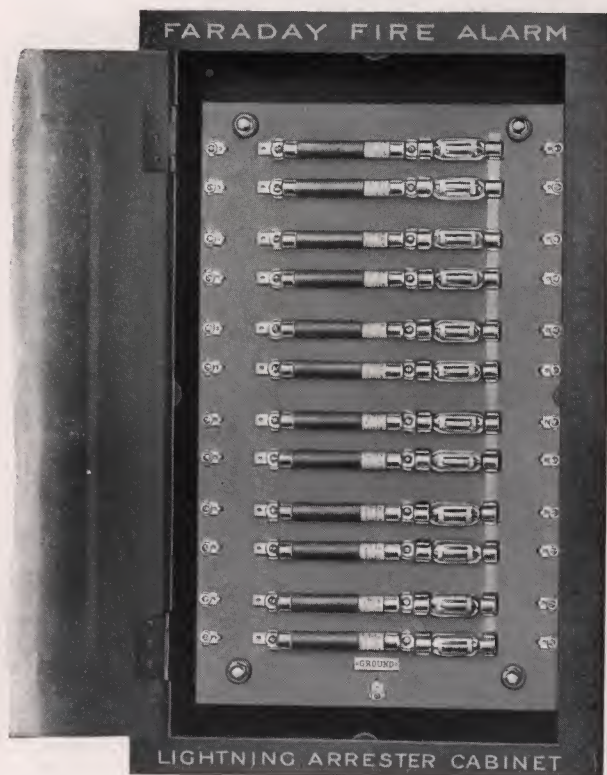


MONEY CAN BUY"

TRADE MARK

FARADAY MUNICIPAL FIRE ALARM APPARATUS

LIGHTNING ARRESTER CABINETS



Model No. 201
Lightning Arrester Cabinet

Faraday Lightning Arrester Cabinets are designed for the protection of Municipal Fire Alarm Circuits.

They consist of slate or ebony-asbestos panels, having mounted thereon cartridge vacuum tube arresters and fuses for each circuit. They are substantially made with heavy busses and are arranged with clip-jaws to permit the easy renewal of fuses or arresters when necessary.

Cabinets are made of pressed-steel, provided with door and Yale-lock and have "knockouts" for $\frac{1}{2}$ " and $\frac{3}{4}$ " conduit. They are furnished in glossy English-vermillion to harmonize with other fire alarm apparatus.

Prices include Cartridge-Vacuum-Tube-Arresters
and Fuses

Model No.	Number Circuits	Price Each
201-M	1	\$80.00
202-M	2	110.00
203-M	3	140.00
204-M	4	170.00
201-T	1	80.00
201-V	1	80.00

ENCLOSED FUSES FOR LIGHTNING ARRESTERS AND CARTRIDGE VACUUM-TUBE ARRESTERS

Faraday Enclosed Fuses for replacement of those furnished with Faraday Lightning Arrester Cabinets have a carrying capacity of 0.2 Amperes at 600 Volts.

Vacuum-Tube Arresters have a normal discharge-gap of 500 Volts; an excess of 500 Volts will break through the gap and cause the current to pass into the ground, thus protecting the apparatus beyond it. When voltage drops again below 500 Volts the by-pass to ground is removed.

Model No.	Description	Price Each
205	Enclosed Fuse for Lightning Arresters..	\$0.55
206	Cartridge Vacuum-Tube Arrester.....	5.00

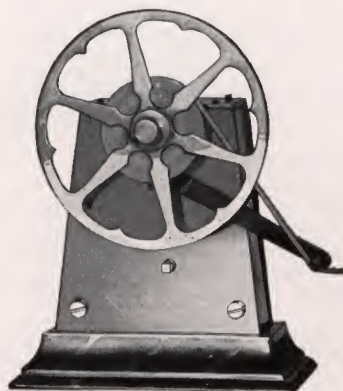
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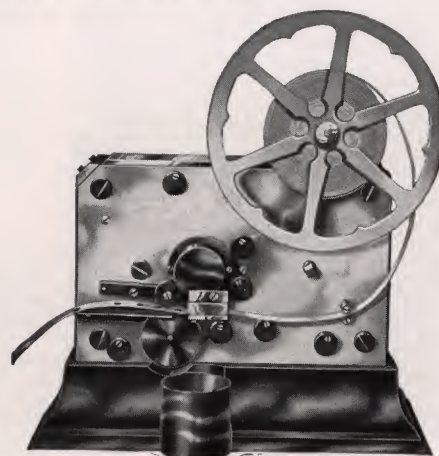
AUXILIARY DEVICES for FARADAY MUNICIPAL FIRE ALARM SYSTEMS



Model No. 5051
Faraday
Take-up-Reel



Model No. 5052
Faraday
Time-Stamp



Model 5050
Faraday
Punch Register

FARADAY PUNCH REGISTERS AND FARADAY TAKE-UP REELS

For Operation on Systems "M," "T" and "V"

Faraday Punch Registers are used as auxiliary to gongs and other sounding devices to insure a permanent record of alarms. They indicate by perforations on a paper-tape the box-code, transmitted from any fire-alarm-box, and are far more reliable than the ordinary ink-writing register, because of the fact that **the record is punched in the tape** while the latter merely stamps the code-number on the tape, and is not always clear. Faraday Punch Registers are furnished with or without Take-up reels. We strongly recommend the use of the Take-up-reel as this insures the preservation of the record for future reference.

Model No.	Description	Price Each
5050	Faraday Punch Register without Take-up-Reel.....	\$562.50
5051	Faraday Take-up-Reel for above	87.50

FARADAY TIME-STAMP OUTFITS

For Operation With Faraday Punch Register on Systems "M" and "T"

Faraday Time-Stamps are designed to produce a record of the minute, hour, day, month and year of each signal transmitted, making a record of the exact time on the punch-register-tape. An accurate clock is furnished with the time-stamp proper, and this clock may be installed in some conspicuous place, thus serving as a general time-keeper, in addition to providing the impulse for the time-stamp.

Model No.	Description	Price Each
5052	Faraday Time-Stamp Outfit complete, consisting of Automatic Time-Stamp, Electrically-Wound Master-Clock, and Relay for Kicking Coil.....	\$1475.00

BATTERY EQUIPMENT FOR FARADAY TIME-STAMP OUTFITS

If current to operate Master clock of Faraday Time-Stamp Outfit cannot be taken from the fire alarm batteries, battery equipment is required consisting of Storage Battery Set, Rectifier, Control and necessary Relays.

Model No.	Description	Price Each
5053	Battery Equipment complete with Storage Battery Set, Rectifier, Control and Relays.....	\$375.00

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FIRE ALARM FARADAY RELAYS

Fire Alarm Faraday Relays are made in three (3) general types, viz.:

- (1) **Heavy-duty-Relays** for the operation of Air-Horns and similar devices, requiring comparatively heavy current at the contacts. For open or closed circuits.
- (2) **Light-duty Relays.** For closed-circuits only.
- (3) **Standard Telegraph-Relays.** For open or closed circuits.

Two types of mechanisms of Fire Alarm Relays may be furnished, viz.:

- Non-locking type mechanism
- Locking-type mechanism,

this latter being used more often in burglar alarm systems.



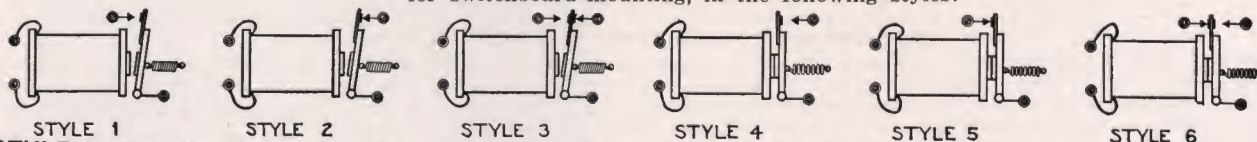
Heavy Duty Relay
Closed-Circuit
Front-Back Contact

HEAVY-DUTY RELAYS

are designed for use in Fire Alarm Systems where it is desired to control the operation of devices auxiliary to the regular bells and other sounding apparatus, such as for instance, the starting of motor, or the blowing of continuous blasts on air-horns, whistles, or sirens. If codes are desired on air-horns, whistles or sirens, use the FARADAY UNIFORM TIMING-RELAY, described and illustrated on another page of this catalog.

For operation on 18-24 Volt Transformers and 100-110 Volt or 220-250 Volt AC Light and Power Circuits, 50-60 cycles standard, (25, 30 and 40 cycles to order) or 6-12-24 Volt Battery and 110-125 Volt and 220-250 Volt DC Light and Power Circuits.

Magnets are wound to resistance best-suited to the particular type of system. Contacts are heavy silver, and are furnished for single, two, three or four circuits, according to the service required. This relay is made mounted on slate or ebony-asbestos base, with or without pressed-steel-cabinet or, without base, for switchboard-mounting, in the following styles:



- STYLE 1—Open-circuit, front-contact, coils normally de-energized (Armature away from magnet) Contacts open.
 STYLE 2—Open-circuit, back-contact, coils normally de-energized (Armature away from magnet) Contacts closed.
 STYLE 3—Open-circuit, front-back contact, coils normally de-energized (Armature away from magnet) Contacts closed on back and open on front.
 STYLE 4—Closed-circuit, back-contact, coils normally energized (Armature against magnet) Contacts open.
 STYLE 5—Closed-circuit, front contact, coils normally energized (Armature against magnet) Contacts closed.
 STYLE 6—Closed-circuit, back-front contact, coils normally energized (Armature against magnet) Contacts open on back and closed on front.

When ordering Fire Alarm Faraday Relays specify, Model No., Style, (1, 2, 3, 4, 5, or 6 indicating whether open or closed circuit and contact arrangement), operative voltage, number amperes contacts must make and break, and, if for AC, specify also number of cycles (frequency).

Any combination of contact-arrangement can be furnished if so specified.

LIGHT-DUTY RELAYS

are designed for connection to standard, closed-circuit Industrial Fire-Alarm Systems where it is desired that a trouble-signal be given at a point remote from the control-board, i. e., a purely local trouble-alarm, such as for instance, in the superintendent's office, etc.

Magnets are wound to resistance best suited to the particular type of system. Contacts are of silver of sufficient carrying-capacity to operate a local trouble-bell either from the local light and power-circuits or from local batteries. These relays made FOR CLOSED-CIRCUIT ONLY.

For operation on 18-24 Volt Transformers and 100-110 Volt or 220-250 Volt AC Light and Power Circuits, 50-60 cycles standard (25, 30 and 40 cycles to order) or 6-12-24 Volt Battery and 110-125 Volt or 220-250 Volt DC Light and Power Circuits.

TELEGRAPH PONY RELAYS

are made in the familiar pattern consisting of a pair of magnets, wound normally to 20 ohms, and so arranged that the contacts may be adjusted for either open- or closed-circuits, back or front-contact, as desired. Contacts are of silver and of ample carrying-capacity for the purpose intended.

For operation on **Battery** circuits only.

See following pages for specifications and prices of Fire Alarm Faraday Relays.

(Continued on next page)

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TRADE MARK



Model Nos. 9007 and 9015
Two-circuit-Non-Locking Type

**HEAVY-DUTY
FIRE ALARM
FARADAY RELAYS
IN PRESSED-STEEL
CABINETS
OPEN OR CLOSED CIRCUITS**

Maximum Contact-Carrying Capacity

Watts: 1000

Amperes: 10

Volts: 250



Model Nos. 9010 and 9018
Single-circuit Locking Type

For operation on Transformer and AC Light and Power Circuits

50-60 cycles standard—25, 30 and 40 cycles to order

Model No.	Description	18-24 V Trans. Each	100-110 Volt AC Each	220-250 Volt AC Each
9006	Single-circuit Non-Locking Type	\$32.00	\$34.00	\$36.00
9007	Two-circuit Non-Locking Type	35.00	37.00	39.00
9008	Three-circuit Non-Locking Type	38.00	40.00	42.00
9009	Four-circuit Non-Locking Type	41.00	43.00	45.00
9010	Single-circuit Locking Type	42.00	44.00	46.00
9011	Two-circuit Locking Type	45.00	47.00	49.00
9012	Three-circuit Locking Type	48.00	50.00	52.00
9013	Four-circuit Locking Type	51.00	53.00	55.00

For operation on Battery and DC Light and Power Circuits

Model No.	Description	6-12-24 V Battery Each	110-125 Volt DC Each	220-250 Volt DC Each
9014	Single-circuit Non-Locking Type	\$26.00	\$30.00	\$32.00
9015	Two-circuit Non-Locking Type	29.00	33.00	35.00
9016	Three-circuit Non-Locking Type	32.00	36.00	38.00
9017	Four-circuit Non-Locking Type	35.00	39.00	41.00
9018	Single-circuit Locking Type	36.00	40.00	42.00
9019	Two-circuit Locking Type	39.00	43.00	45.00
9020	Three-circuit Locking Type	42.00	46.00	48.00
9021	Four-circuit Locking Type	45.00	49.00	51.00

Heavy - duty Relays are regularly furnished with pressed - steel cabinets, having $\frac{1}{2}$ inch and $\frac{3}{4}$ inch knockouts on all four sides for conduit installation.

If cabinets are not required deduct \$3.00 from above list prices.

If required for PANEL MOUNTING, i. e., without cabinet and without base, deduct \$4.00 from above list prices.

WATERTIGHT cast-iron cabinets, having top and bottom drilled and tapped for $\frac{3}{4}$ inch conduit and bushed to $\frac{1}{2}$ inch will be furnished at an addition to list price of \$10.00.

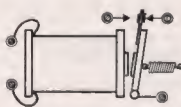
When ordering Heavy-Duty Relays specify Model No., operative voltage, number amperes contacts must make and break, number of cycles, if for AC, and Style No. (1, 2, 3, 4, 5 or 6) indicating whether open- or closed-circuit and contact arrangement.



STYLE 1



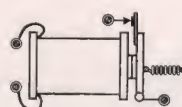
STYLE 2



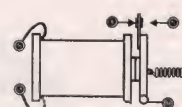
STYLE 3



STYLE 4



STYLE 5



STYLE 6

STYLE 1 Open-circuit, front-contact, coils normally de-energized (Armature away from magnet); Contacts open.

STYLE 2 Open-circuit, back-contact, coils normally de-energized (Armature away from magnet); Contacts closed.

STYLE 3 Open-circuit, front-back contact, coils normally de-energized (Armature away from magnet); Contacts closed on back and open on front.

STYLE 4 Closed-circuit, back-contact, coils normally energized (Armature against magnet); Contacts open.

STYLE 5 Closed-circuit, front contact, coils normally energized (Armature against magnet); Contacts closed.

STYLE 6 Closed-circuit, back-front-contact, coils normally energized (Armature against magnet); Contacts open on back and closed on front.

(Continued on next page)

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Model No. 9002
Light-Duty Relay

LIGHT-DUTY FIRE ALARM FARADAY RELAYS

FOR CLOSED-CIRCUITS ONLY

Maximum Contact-Carrying Capacity: Watts: 200; Amperes: 8; Volts. 250.

For operation on Transformer or AC Light and Power Circuits
50-60 cycles standard, 25, 30 and 40 cycles to order

Model No.	Description	18-24 V Trans. Each	100-110 Volts AC Each	220-250 Volts AC Each
9002	Non-Locking Type in pressed-steel cabinet.....	\$28.00	\$30.00	\$33.00
9003	Locking Type in pressed-steel cabinet.....	38.00	40.00	43.00

For operation on Battery or DC Light and Power Circuits

Model No.	Description	6-12-24 V Battery Each	110-125 Volts DC Each	220-250 Volts DC Each
9004	Non-locking Type in pressed-steel cabinet.....	\$22.50	\$27.00	\$30.00
9005	Locking Type in pressed-steel cabinet.....	32.50	37.00	40.00

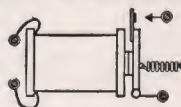
Light-Duty Relays are regularly furnished with pressed-steel cabinets, having $\frac{1}{2}$ inch and $\frac{3}{4}$ inch knockouts, on all four sides for conduit-installation.

If cabinets are not required deduct \$3.00 from above list prices.

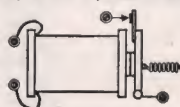
If required for PANEL MOUNTING, i. e., without steel-cabinet and without base, deduct \$4.00 from above list prices.

WATERTIGHT cast-iron cabinets, having top and bottom drilled and tapped for $\frac{3}{4}$ inch conduit and bushed to $\frac{1}{2}$ inch will be furnished at an addition to list price of \$10.00.

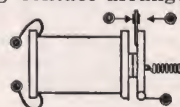
When ordering Light-Duty Relays specify Model No., operative voltage, number amperes contacts must make and break, number of cycles, if for AC, and Style No., (4, 5 or 6) indicating contact arrangement.



STYLE 4



STYLE 5



STYLE 6

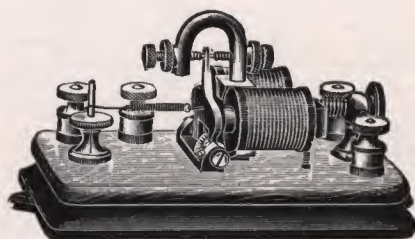
STYLE 4 Closed-circuit, back-contact, coils normally energized (Armature against magnet); Contacts open.

STYLE 5 Closed-circuit, front contact, coils normally energized (Armature against magnet); Contacts closed.

STYLE 6 Closed-circuit, back-front-contact, coils normally energized (Armature against magnet); Contacts open on back and closed on front.

TELEGRAPH PONY FIRE ALARM FARADAY RELAYS

For operation on Battery Circuits only
OPEN OR CLOSED-CIRCUITS



Model No. 9040
Standard Telegraph Relay

Model No.	Description	Price Each
9040	Non-locking Type	\$13.00
904	Locking Type	23.00

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FARADAY MUNICIPAL FIRE ALARM SYSTEMS

HOW TO ESTIMATE THE APPROXIMATE COST OF THE OUTSIDE WIRE PLANT FOR A MUNICIPAL FIRE ALARM SYSTEM



LOCATION OF FIRE ALARM BOXES

As the outside wire-plant is connecting the fire alarm boxes with the central-station alarm-equipment, it is necessary to **first decide on the location of the fire alarm boxes.**

Secure a plan of the town or village, and spot the locations of the boxes, keeping in mind the following regulation, taken from the "**Rules and Regulations for the Installation, Maintenance and Use of Municipal Type Fire Alarm Systems,**" issued by the National Fire Protection Association:

RULE 8-J

"Boxes shall be located so as to suitably protect the city or town. In general it is considered that a box should be plainly visible from the main entrance of any building in congested districts. In mercantile or manufacturing districts it should not be necessary to traverse more than one block, nor more than 300 feet to reach a box; in closely built-up residential districts this distance should not exceed one block or 500 feet, and in other residential districts this distance should not exceed three blocks or 1,000 feet along or toward the main artery of travel."

POLE-LINE

Then make a survey of the facilities for the pole-line. In all probability, minor changes will have to be made in the preliminary lay-out of the boxes—there may be no poles in the neighborhood or no practical way to reach the box-location. It is most important that pole numbers and locations be recorded. This simplifies the preparation of specifications, and affords absolute reference-points as to box-locations, turning-points in the line-wire-run, etc.

The total number of pole-line-sections in the plant having been determined the required length of No. 10 B & S Triple Braid Weatherproof Hard-Drawn Solid Copper-Wire is readily established, since the average length of a pole-line-section is 120 feet, allowing for sag, wire-ties, etc.

The quantity of hardware, fittings, etc., may be established from the following:

For each pole are required:

- 1—Cross Arm.
- 2— $1\frac{1}{4} \times \frac{1}{4} \times 28$ " Galvanized Cross-Arm-Braces.
- 2— $1\frac{1}{4} \times 8$ " Locust or Oak Pins (Locust Pins are better).
- 2—No. 19 Hemingray Glass-Insulators.
- 2— $1\frac{1}{2}$ " Round Galvanized Washers.
- 2— $2 \times 2 \times \frac{1}{8}$ " Square Galvanized Washers.
- 2— $\frac{5}{8} \times 4\frac{1}{2}$ " Galvanized Carriage Bolts.
- 1— $\frac{1}{2} \times 16/18$ or $20/22$ " Machine Bolt and Nut (length depending upon thickness of pole).

POSITION OF WIRES

The next step is to **ascertain the requirements of the owners of the pole-line as to the positions they will assign for fire alarm wires.** One company will require the attachment on the first "gain" below the secondary distributing wires; another, at least, 4 feet distant; another requires fire-alarm-wires below other signal-wires and still another will have fire-alarm-wires at no other place than directly above the other signal-wires, i. e., telegraph- or telephone-wires.

(Continued on next page)

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HOW TO ESTIMATE THE APPROXIMATE COST OF THE OUTSIDE WIRE PLANT FOR A MUNICIPAL FIRE ALARM SYSTEM

(Continued from preceding page)

CLIMBING-SPACE

It is also necessary to establish the "climbing-space" permitted by the owners of the pole-line. Some owners permit a climbing-space of twenty inches. Others keep to the standard of thirty inches. (One large Power-Company in the East required even forty inches.) This is very important since the climbing-space establishes the size of the cross-arm. Forty inch spacing would mean a special cross-arm with corresponding increase in cost and time of delivery.

It is of much importance that these points be settled before starting installation so as to avoid costly re-arrangement of wire-plant.

POLE-LINE-PERMITS

In connection with the pole-line-work, it has been definitely established in the Courts that a Public-Service Company, using the Public Highways as mounting-space for its pole-structures, must permit a Municipal Corporation to attach its fire-alarm- and police-signal-wires without cost. This point of law has been further established to mean that one cross-arm or one duct-space in an underground subway complies with the requirement. Usually a Municipality, in order to obtain pole-line permits, must enter into an agreement with the Public-Service-Company, issuing such permits, releasing the Public-Service-



Company from all damages arising from the presence of the municipal property on its poles and from any suit for personal damages arising out of injury to a municipal employee while on the pole-line or in an underground manhole, etc.

RIGHT-OF-WAY

If there are any crossings over the "Right-of-Way" of a Steam- or Electric-Railway the permission of the owner must be secured, and may be generally obtained through the office of the Engineer-in-Charge of Maintenance-of-Way. Clearance of the wires will average between 30 and 35 feet—measurement to top of the rail. For mechanical strength the wire-size should be increased to No. 8 B & S at railroad crossings, especially if the span exceeds 100 feet.

LABOR-COSTS FOR AERIAL-WORK

A fair average cost for cross-arms made ready by the ground-man and placed in position by the lineman is \$2.00 per arm. The cost of pulling wire in place, tying to insulator, including minor tree-trimming, averages between \$0.75 and \$1.00 per 100 feet. Extensive tree-trimming should be treated as special, as it adds to the cost.

(Note: These costs are the result of field-experience in and around New York, and are based on Union-Labor-Rates, prevailing at the time this catalog was issued.)

(Continued on next page)

"THE BEST THAT



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TRADE MARK

HOW TO ESTIMATE THE APPROXIMATE COST OF THE OUTSIDE WIRE PLANT FOR A MUNICIPAL FIRE ALARM SYSTEM

(Continued from preceding page)

MOUNTING THE FIRE-ALARM-BOXES

The loop-wires to the box should be No. 14 B & S N.E.C. rubber-covered wire. These loop-wires must be installed in conduit, and the conduit must be insulated from the ground by means of an insulating-joint placed at the fire alarm box. This is of extreme importance as otherwise there is much danger of a lineman sustaining serious—even fatal injury through grounding himself between line-wire and conduit.

MATERIAL-REQUIREMENTS FOR EACH BOX

The following material is required for each box:—

- 1— $\frac{1}{2}$ inch Service-Head with 2-hole porcelain-cover.
- $\frac{1}{2}$ inch Galvanized Conduit, to reach from wire-line to the insulating joint.
- $\frac{1}{2}$ inch Galvanized Pipe-Straps.
- 3—4 inch wood-screws and
- 2—Short nipples, cut from $\frac{1}{2}$ inch conduit.

Note: The wood-screws and nipples are used to attach the box to the pole, in preference to the old-type back-board or arm-method, both of which required cutting of the pole. The nipples are used to space the distance between the box and the pole.



HOW TO MAKE AN APPROVED GROUND

The fire alarm box should be placed on the pole so that the center of the box is not more than 6 feet from the finished street or sidewalk-level.

A length of $\frac{1}{2}$ inch galvanized conduit should be provided to reach from the bottom "boss" of the box to a point just below the level of ground.

A good "ground" is made in the following manner:

Take a piece of galvanized-iron-pipe, long enough to reach **permanent moisture level** when driven into the ground. Then make a "V" cut near that end of the pipe which is to be driven into the ground, fasten to this cut a No. 10 B & S bare copper-wire, winding it about 12 turns round the pipe, solder the turns, pass the end of the wire through the pipe and pull tight.

This ground-rod should be driven into the ground about 6 inches from the pole-butt until it is buried. The No. 10 B & S bare copper wire is then spliced to a No. 10 B & S insulated wire, pulled through the conduit, leading from the bottom of the box. There is no need for insulating the splice. The dirt at the base of the pole is then replaced. The ground wire is terminated on the combination-ground- and arrester-plate in the fire alarm box.

LABOR-COST PER BOX

Average cost for mounting the box on the pole and making the "ground"-connection is \$5.00 to \$8.50 per box, where there are several boxes to be installed; for single boxes \$10.00 to \$12.00 each is a fair price.

These estimates are based on labor-cost in the Metropolitan District of New York and, of course, vary in other localities.

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FARADAY MUNICIPAL FIRE ALARM SYSTEMS

HOW TO LOCATE AND ISOLATE TROUBLE

The most frequent source of trouble in a Class "C" Municipal fire alarm installation is "grounds". These may be the result of many causes, the principal one of which is that of improper trimming of **trees**.

It is the experience of the average superintendent that, when a system tests clear of trouble and a slight ground appears with the first fall of rain, increasing in severity as the storm progresses and then tapers off, finally clearing up with a day or so of sunshine, "**tree-grounds**" are the cause.

When a "ground" is slight and remains so, even after a spell of sunshine, moisture on the terminal block or plate of a fire alarm box is most likely the cause. This may be the result of condensation. The remedy is to wipe the box clean, and dry it out by permitting the air to circulate freely through the box.

When a ground is heavy but intermittent any one of the following may be the cause:

- (a) **Frayed insulation.** Limb of tree in contact with bare copper, due to cutting through insulation—current flows via tree-sap to ground. Swaying of limb will often swing the "ground" clear or drop its value to a negligible amount and then cause it to again return.
- (b) **Crushed insulation of lead-in-wires in fire alarm box.** Due to improper stowage of slack in these wires, door may cut through insulation, etc., etc., and cause contact with bare copper. This makes a solid "ground", due to the metallic "ground" of the box. A heavy vehicle in passing, may shake the "ground" clear or vice-versa.
- (c) **Removal of fire alarm wires** by persons working on pole-line or replacement of wires in an improper manner may cause crosses on contacts with trees, etc.

"Double-grounds" result in shunting out the sections between the "grounds". If there are no boxes or instruments in the line shunted out, it will hardly be noticed, for the reason that the resistance cut out will be low in value—1 ohm per 1000 feet. If there are instruments in the line the lowered resistance of the line will cause a higher discharge-rate than normal. **Check discharge rate at panel-meter.**

"Opens" are generally associated with outside plant for the reason that other parts or points in the plant are reasonably free from mechanical and electrical injury. However, coils of magnets—either of bell or of non-interfering parts of the box-mechanism may burn out or "go open" from mechanical injuries, etc., etc.

The only way to isolate this trouble is to **determine at Headquarters, which section is affected**, then inspect the outlying plant and search out the break in the line. In the event of no breaks, an open magnet-coil may be the cause. Finally, if these points all check and show clear, splices or the terminating may be defective. Wires have been known to be "nicked" when removing insulation. Bending of the wire, when terminating, opens the copper at the nick—subsequent vibration changes the structure of the copper, and eventually the line goes "open".

(Continued on next page)

"THE BEST THAT



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HOW TO LOCATE AND ISOLATE TROUBLE

(Continued from preceding page)

"Swinging-opens" are usually the result of poor splicing-copper, sleeves not properly twisted, etc., etc. Strain on the line, due to wind, etc., pulls the splice partially open **electrically but not mechanically** and, as the strain eases, the line closes. This trouble will account for the continual single blasts or gong-strokes on the alarm equipment. It is exceedingly hard and tedious to isolate it as **it requires the inspection of each splice in the section.**

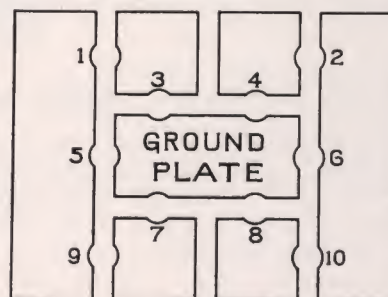
Short circuits in outside lines merely shunt out the equipment beyond the "short". It acts in the same manner as a "double-ground". It will not show if there are no instruments shunted out but of course, any apparatus, shunted by this trouble, will be dead.

TESTING FARADAY CONTROL-PANELS FOR TROUBLE

Faraday Control-Panels are equipped with a Hospital-or Test-Section making the testing for trouble exceedingly simple, proceeding as follows:

The circuits of Faraday Control-Panels are so arranged that the **opposite or idle battery of the system is used for all testing**, thus leaving the working-battery free and undisturbed to care for the system. If charging of the batteries is being carried on at the time the test is to be made, the charging **must be stopped.**

On the panel will be found a Test-Plate (see cut below).



Plates 3 and 4 are connected to the Test-Meter.
Plate 7 is connected to **NEGATIVE** Test-Battery.
Plate 8 is connected to **POSITIVE** Test-Battery.
The two outer plates connect with the Test-Milliammeter.
The center-plate connects with "ground".

Throw the circuit-switch for the circuit to be tested "in", i. e., toward the center of the panel. This throws the circuit under test into the hospital-section of the panel and does not interfere with any of the other circuits.

When the circuit is thrown into the Hospital-section of the panel the meter in center of panel will indicate the voltage to "ground". **Should there be no indication at the meter, the line is clear.**

In the event of an indication on the meter, adjust the balancing resistance until 100-120 milliamperes is indicated on the Test-Meter. Then transfer the switch plug from 2—on the Test Plate—i. e., the upper right-hand corner, to 4. This connects the upper right-hand plate to the ground-plate. The Meter will then show the voltage-drop of the "ground" in the positive leg. By inserting plug in upper left-hand-plate 3—first removing the plug from 1 and replacing in 2—the voltage-drop in the **negative** leg will be shown.

(Continued on next page)

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HOW TO LOCATE AND ISOLATE TROUBLE

(Continued from preceding page)

To Locate a "Ground".

1. First, place switch plugs in 8 and 9. Remove all other plugs.
2. Then open the outside-line at any convenient point.
3. Insert a low-reading ammeter and if the meter reads, the ground is beyond the point of observation.
4. Restore conditions at the point of observation and then open the line at a point farther away from the Headquarters until there is no deflection in the meter. The ground will be found between the test position and the last point of observation.

To Locate a "Break" or Open.

1. Place switch-plugs in 9 and 10 and 8. Remove all other plugs.
2. Follow outside line, connected to the upper terminal of the circuit at the panel, and ground the line at convenient points.
3. When the point is reached where no current-flow shows on the meter, the "open" in the line will be found between the test-point and the last point of observation. This test may be reversed, starting out from the lower terminal at the control-panel.

IMPORTANT

After the trouble has been located and cleared, throw the circuit-switch to "out"-position and restore switch-plugs in Test-Plate to points 1-2-9-10.

TROUBLE ON ELECTRIC SIREN SYSTEMS

First, provide a test-set, consisting of a lamp-socket and a suitably guarded 25 watt, 110 volt lamp. The leads from the socket should be about 6 feet in length. The ends of the leads should be stiffened by soaking in solder or, better still, procure two pieces of hard-drawn No. 10 copper wire, about four inches in length, splice the test leads to the hard drawn copper points and then tape securely. Wood handles may be used instead of the tape handle. The copper should be drawn down to a blunt point.

FOR "OPENS"

Disconnect the outgoing box-circuit from the control-unit and connect current to the outgoing line, thus cutting out the Central-Office: or insulate contacts of main relay by inserting a piece of thin card-board, heavy paper, or empire-cloth, etc. This will keep the main-circuit open even though the contacts close.

Then open the line at the first station, i. e., push-button or safety-switch. Test both lines individually with the test-set by connecting the lamp between the line and ground. If the lamp lights the line is clear. Continue on the line, and when the lamp remains dark, the open will be found between the test-point and the last point of observation.

FOR "GROUNDS"

Since one side of the circuit, running to the several stations, is grounded, an additional "ground" will not cause any trouble on the grounded wire. Grounding the "live" side of the circuit acts the same as operating a station. In this case, however, the device operated on the control-panel will remain in an operated position continuously, until the line is cleared.

The isolation of this trouble must be done section by section. Trouble will be generally found to have been caused by tree-grounds, frayed insulation, etc., etc.

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SUGGESTED CODES FOR FIRE ALARM BOXES

for

MUNICIPAL FIRE ALARM SYSTEMS

In the planning of code-numbers for fire alarm boxes the use of the code "1-1" (one-space-one) should be avoided. It is too easy to mistake this code for "2" (two).

In Municipal Systems it will be generally found that the community has been arranged in political sub-divisions. These divisions may be called Wards, Precincts, Districts, etc., etc., and the boundaries are established in the minds of the citizenry. Under no conditions should this "common knowledge" be disregarded.

In the selection of codes each box in a given division should be given the same first digit-signal. Then the boxes must be so located within the division that all parts be "covered." The rule governing the location of fire alarm boxes in muni-



Faraday
Succession
Positive Non-Interfering
Fire Alarm Box



Faraday
Positive Non-Interfering
Fire Alarm Box

palities will be found under the heading—"How to Estimate the Approximate Cost of the Outside Wire Plant for a Municipal Fire Alarm System" on pages 47, 48 and 49.

Thus, for example, in Ward 5 we may have a set of fire alarm boxes:

5-1 5-2 5-3 etc., etc.

Later on more fire-alarm-boxes may be required for additional buildings, but this does not mean that the established code-system must be upset. The added boxes should merely be referenced to the nearest existing box. Thus, if a new box is required, say three blocks or squares from 5-3, the new box should become 5-3-2, etc., etc.

A further development would be in the case of a community having a fire-department in which the quarters of the various companies are widely scattered. In this case the **Initial Digit** would mean in the case of Box 2-5-1 that Engine-Company No. 2 would respond, and the engine-company adjoining would be "second due" to the fire. These companies would be the only ones to respond on a first alarm. In working out this code-system, **there is the necessity of having some codes where all companies respond, and a similar-sounding signal where only one company responds.** All such conditions must be carefully considered.

Modern fire-practice requires clean, clear-cut, "snappy" signals, sent through in the shortest possible time and, where the firemen are "called" through the medium of a general alarm-signal, i. e., a tower bell, steam whistle, compressed-air-horn or compressed-air-whistle, there must be four complete rounds of the signal. Rule 8-E of the "Regulations of the National Board of Fire-Underwriters" provides: "Boxes shall send not less than two nor more than four rounds of the box numbers. Four rounds are required where outside alarm-devices are operated directly from the boxes for summoning call or volunteer-firemen".

(Continued on next page)

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SUGGESTED CODES FOR FIRE ALARM BOXES

for

MUNICIPAL FIRE ALARM SYSTEMS

(Continued from preceding page)



SPECIAL SIGNALS

Special classes of buildings are usually grouped under one number. Thus Municipal Buildings may be Class 6, City Hall 6-1, Pump House 6-2, etc., etc. Public Schools, Class 7 and

Hospitals, Class 8 or some preliminary signal calling all available help as patients may have to be carried out of building, etc., etc.

The usual run of "Engineer" Signals are

- 1 Broken Wire,
- 2 Chief's Call or Back-Taps (Return to quarters—Fire Out),
- 3 Followed by Box Number, indicating "Out of Town Call" and the meeting-point of the firemen.

The rest of the **single number** calls are usually reserved for "No-School-Today", etc., etc.—"Police" or "Riot-call" may be any code not interfering with a fire-signal.

In practice, the signal "2" works out in the following manner: At headquarters word is received that help is required. It may be the time of the year when brush-fires are prevalent, and the Chief would not want to send out all companies. In that case signal 2 is sent out and repeated twice. If the Chief is available (and this includes the under-chiefs) he will answer by telephone and give instructions as to the signal to be sent out. If there is no response to the Chief's Call, the alarm is sent through without further delay. All of which takes only one minute. Of course, there are exceptions to every rule.

Should a municipality have more than 300 alarms of fire per year, it is automatically placed in Class "B". It is then classed as a **City**, and a corps of trained attendants are required at Headquarters. If there are more than 600 alarms per year it is placed in Class "A" and the staff must be so arranged that a complete set of attendants are provided for each eight hours of the day.

Communities having 300 or less fire alarms per year are placed in Class "C."

The information given above, as well as systems and apparatus, listed in this catalog are compiled for Class "C" Communities only. Classes "A" and "B" Communities intending to install fire alarm systems require specific engineering survey of local conditions.

In this event direct communication with our Engineering Department is requested, which is maintained by us for the purpose of solving individual problems and needs.

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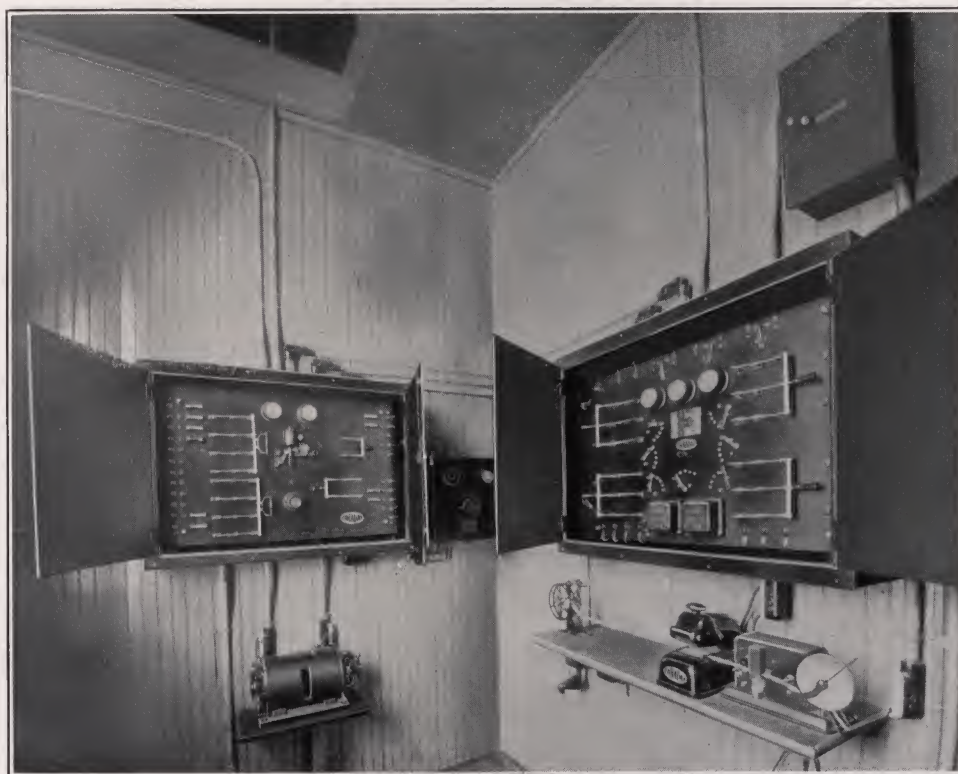
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TYPICAL CENTRAL OFFICE INSTALLATION of FARADAY FIRE ALARM SYSTEM "M"



TYPICAL CENTRAL OFFICE INSTALLATION

This picture shows a typical FARADAY installation of a small-town Fire-Alarm-System. It consists of:

Charging-Control-Cabinet, Model No. 715 (shown at left).

Motor-Generator with Rectifier in reserve.

Fire-Alarm Control-Cabinet, Model No. 111 (shown at right).

Recording Set, consisting of

Automatic Punch-Register.

Take-up-Reel and

Time Stamp (shown directly below the Fire-Alarm Control Cabinet).

In this particular installation the Master Clock, controlling the Time-Stamp, is mounted in another room, and is used as official time-piece for the Police-Department.

The entire equipment in this installation, viz: Battery —35 cells in duplicate (not shown in the photograph), Charging-Cabinet, Control-Cabinet, Lightning-Arrester Panel (not shown in the photograph), and the Relay Control for the clock system, can all be installed in a room not necessarily larger than 8 by 9 feet.

Description of the various parts of this apparatus for a Central Office will be found on the pages listed below:

Charging-Control-Cabinet.....	See page 37.
Rectifier.....	See page 40.
Motor-Generator.....	See page 40.
Control-Cabinet.....	See page 36.
Time-Stamp.....	See page 43.
Automatic Punch Register.....	See page 43.
Lightning-Arrester.....	See page 42.
Storage Batteries.....	See page 39.

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GENERAL GUARANTEE

Faraday Fire Alarm Apparatus is guaranteed free from electrical and mechanical defects for a period of 2 years from date of sale; in case of defect, apparatus will be repaired or replaced (at our option) without cost to purchaser, providing said apparatus is returned, transportation charges prepaid, to our factory at 150 Varick Street, New York, with "RETURN-GOODS-PERMIT" attached to shipment. We cannot entertain claims nor be responsible for the cost of repairs made or attempted by other than our own workmen, and can entertain no claims for defects if name plates are removed from apparatus. We cannot hold ourselves responsible for any claims for labor, testing and locating faults, etc., etc., unless authorized by us in writing.

SPECIAL GUARANTEE

Where it is specified that Faraday Fire Alarm Apparatus shall comply with Industrial Fire Alarm Ordinances of various cities and states, guarantee, in written contract form, will be furnished that the apparatus will be acceptable to the authorities named, when installed in accordance with the rules and regulations of authorities having jurisdiction.

ENGINEERING ADVICE

We maintain a corps of expert Fire Alarm Engineers and will furnish, upon request, free of charge, detailed advice as to apparatus required, installation of same, etc.

PATENT NOTICE

Faraday Fire Alarm Apparatus is protected by patents, issued and pending. We urge the trade to avoid purchase, sale or installation of infringing apparatus.

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